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DEVOTED TO

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PUBLIC POLICY,

AND

POLITE LITERATURE.

Agriculture and the Mechanic Arts are the basis of Civilization.

M. TARVER & H. COBB,
EDITORS & PROPRIETORS.

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THE

WESTERN JOURNAL

and Civilian.

VOL. X. July, 1853. No. IV.

ARTICLE I.

Manufacturing Associations and Industrial Fairs.

Convinced by long observation that manufactures—the products of machinery and of the handicraftsman—are essential elements of national wealth, we assigned to that branch of industry a leading department in the Western Journal, at the commencement of its publication. But we have since learned a fact, which we had not then fully considered, that few individuals are induced to enter upon untried industrial pursuits by the arguments or opinions of the public press.

The application of labor and capital to purposes which insure a reasonable subsistence and profit is a vital point in individual economy, and it requires more than an ordinary degree of courage for one to abandon the occupation to which he has been accustomed, and risk his fortunes upon the results of a pursuit for which he is not qualified, by either instruction or practice. Hence, the opinion of the public press, so potent in respect to other subjects, exerts but little influence upon the character of the occupations pursued by a people.

In view of these considerations we have, without discarding the desire to promote the growth of manufactures in the West, discontinued the production of elaborate arguments, in proof of the pecuniary and social benefits derivable from an enlargement of this branch of industry. Practical men require facts merely, and it is natural that in matters relating to their vocation they should reason for themselves, and be governed by their own conclusions. The degree of success, which attends the production of every commodity, depends, in a great measure, upon certain small details

and a combination of apparently slight causes which are generally overlooked or not understood by public writers, and can only be correctly appreciated by one conversant with their practical effects. Hence, the opinions of experienced and observing individuals are entitled to more consideration, in respect to matters relating to the business in which they are engaged, than all the theories and speculations of the political economist and statesman. And, therefore, our chief object in producing the present article, is to bring the observation and experience of practical men to bear upon the subject of manufactures in the Western States. We desire to promote the public prosperity by means calculated to improve the business and social condition of those engaged in manufacturing; and as there must be a *place* as well as a *time* for the commencement of every work, we propose to address the citizens, and especially the manufacturers and artizans of St. Louis, for the purpose of calling their attention to the means of advancing the interests of this great department of industry.

Almost every branch of manufactures carried on in the United States, is represented in this city. A few have become well established, and occupy a position which commands the patronage of the country; but much the greater number are of recent date, laboring under all the disadvantages incident to a new location, and struggling unaided to obtain a foothold in a community whose prosperity depends, in a great degree, upon their success. It is vain to imagine that commerce alone can build up and sustain large cities in the interior of the United States. Here, the magnitude of cities must be determined, chiefly, by their capacity to produce—commerce is but a secondary element in the development of their growth. And it may be safely affirmed, that the future value of real estate in St. Louis depends much more upon the building up of manufactures, than upon any commercial advantages which can be gained by opening new avenues of trade. It is the nature of commerce to seek new channels, and its current is frequently changed by causes far beyond the control of those residing at a particular locality. Manufactures are more permanent in their nature. They cannot be transferred from one place to another without a loss of the principal part of the capital invested in their erection; and hence, when once established at favorable localities, they remain permanent sources of wealth, sup-

plying commerce with its commodities, and compelling its currents to flow in the direction of their location.

St. Louis possesses all the physical elements of a great manufacturing city, and when her railroad system shall have been completed, it will, in connection with the Mississippi and its tributaries, give her the control of more extensive facilities for receiving raw material and distributing fabrics, than any other city on the continent can ever command. But in this age of progress nothing is more dangerous to the prosperity of cities, than a reliance on natural advantages. It is true, these constitute the vantage-ground against competitors in the beginning ; but of themselves they are no protection against the social combinations and indomitable enterprise which distinguish the present generation. The vantage-ground now occupied by St. Louis must be defended, strengthened and guarded continually, or, in time, her resources will be cut off and divided amongst those who act more nearly in accordance with the spirit of the age.

Nor is St. Louis deficient in social and intellectual elements; but, for the want of proper combinations, these have not been brought to bear with their full force upon her manufacturing interests. Here manufacturers, and more especially the handicraftsmen, come from almost every part of the civilized world ; they arrive here strangers to the resources of the country as well as to the manners and customs of the people; and being destitute of personal friends to whom they can look for countenance and advice, they labor under disadvantages sufficient to embarrass the most intelligent and courageous minds. From these causes, many are doubtless deterred from locating in this city, while those who come are compelled to struggle against adverse circumstances for years, perhaps, before they can make their business profitable, or their social relations agreeable. These are public as well as private evils, and should not be allowed to exist in an intelligent and enterprising community, if a remedy can be devised to ameliorate their effects.

The most obvious remedy for this state of things is the formation of a manufacturing society: an association embracing the entire producing interest of the city, from the seamstress to the manufacturer of iron and sugar. Organize this association upon principles comprehensive and liberal, and appoint executive officers

to be paid reasonable salaries for carrying out its objects. Let a census be taken annually of the manufacturers, operatives and apprentices, embracing the number of establishments, amount of capital invested, value of products, and such other facts relating to the economy of manufacturing as may be deemed useful; and, moreover, let a full report be made upon the state of manufactures semi-annually, or at least once a year. By these reports, the people throughout the entire commercial range of St. Louis will be advised of the nature of the articles manufactured here, and be induced to look to this point for their supplies, instead of going to other markets. These reports would also exhibit the nature and quantity of raw material, fuel and other appliances required by the manufacturers, and stimulate the inhabitants of the rural districts to bring forward many commodities, which are now obtained with difficulty at high prices, while, for the want of such information, they remain useless to the owner.

In connexion with other objects of a manufacturing association it should provide for an annual exhibition of specimens of every kind of wares produced by the manufacturers of this city. Public exhibitions have become an important element in the improvements of the age: in a business view they are to communities what advertising in newspapers is to individuals. But there are other and higher objects to be attained by public fairs and exhibitions: they are calculated to excite a spirit of laudable emulation, and call into action the genius and mental powers of the artizan, elevating his character as a man, and making him more useful to society. They afford to the new beginner an opportunity of making himself and his wares known to the community, and relieve him from the necessity of laboring for years to establish the merit of his articles. Here the modest and conscientious tradesman has an opportunity to compare the merits of his work with the mere pretender who forces his wares upon the community by dint of puffing and other popularizing practices. They afford a pleasing respite at stated seasons from the daily toils of the shop and counting-room, and tend to socialize the feelings and sentiments of those engaged in the various branches of industry. And, besides, the catalogues of articles exhibited being published to the world, the consumer of manufactured articles as well as the dealer would, by this means, be advised of the place where his wants can be supplied.

At present, St. Louis is not known abroad as a manufacturing city, and not one in a thousand of her own citizens has a just conception of the variety and extent of commodities produced here. Were specimens of all her varied products exhibited at one view, it would astonish even those best acquainted with the business of the city, and do more to impress upon the minds of the people of the United States a just sense of the future greatness of St. Louis, than all the works of public improvement that have been projected by her citizens. Such an exhibition would convince well judging men that the growth of St. Louis is neither accidental nor precocious, but based chiefly upon the productive labor and skill of her citizens. And taking into view the brief period in which these results have been produced , and looking to the resources which remain undeveloped in the vast region embraced within the commercial range of the city, intelligent minds would arrive at the natural conclusion that no reasonable bounds could be assigned to its growth.

Public opinion is power, and in one sense it is wealth also; it is potential in building up or pulling down the fortunes of men and cities; it enhances or depresses the money value of property, and as a consequence, in many instances, affects even its productiveness.

Hence the display of the advantages and brilliant prosperity of towns and cities, which is daily found in the public prints in every part of the Union. And though this method of manufacturing public opinion has grown somewhat stale, yet puffing is generally regarded as profitable, and is doubtless, in some instances, a paying business for a time. But it is a species of falsehood and deception—designed to entrap the ignorant and credulous—which, like all dishonest practices, brings contempt upon those who resort it as a means of promoting their individual interests at the expense of the community.

St. Louis requires no puffing, no disingenious devices to attract immigration, but her citizens will be unjust to themselves, if they neglect to make known the true nature and extent of their resources. The city in connection with the state and citizens in general, has entered upon an extensive system of public improvement which will require a liberal use of her credit; and it must be obvious to the most obtuse intellect, that her credit abroad must

be based upon and modified by the nature and extent of her resources at home. And what stronger evidence could we offer to capitalists in support of our claims to be placed on the list of their most favored customers, than a schedule containing a long list of manufactures in a prosperous condition?

Nor can we expect to exert the amount of influence to which we are entitled in the councils of the nation, without making known the nature of our pursuits and the extent of our products.

We are fully aware that the demands upon the time and means of the citizens of St. Louis are now very great, and many no doubt feel disinclined to assume additional burthens; but this is no age of repose, there are no breathing points where individuals or communities may stop by the way side, and refresh themselves for a season, without losing their places in the ranks and falling behind in the rapid march of civilization. In laying the foundation of a comprehensive commercial system, we have also provided the external facilities necessary for the building up and support of manufactures, and it will require but little pecuniary assistance to place this great interest upon a solid basis, and give an impulse to its growth and development that will carry it beyond the influence of ordinary contingencies. We propose to attain this end chiefly by social means. We aim by a social combination to give the producers their just weight and moral influence in the community to be exerted for the common welfare. If organized with judgement, and sustained by the proper spirit, it will be the means of establishing not only the manufacturing but the commercial supremacy of St. Louis over all other cities of this great valley. The plan we propose addresses itself with equal force to every class of our citizens. By placing all the producing classes upon a better footing, operatives from other States will be attracted to this point, and the owners of machinery as well as the handicraftsman will be better supplied with labor, and consequently their operations will be more certain and profitable. But none will be more benefitted by the growth of manufactures than the owners of real estate, and they, of all others as a class, should take the most active interest in organizing and sustaining a manufacturing association. It is true, they can not be expected to take the initiatory step, that must be done by the manufacturers themselves; but we trust, they will be found prompt in supporting by their countenance, and even by more

substantial means, any well devised plan which may be adopted by the association, which we hope to see organized at an early day.

We have heard much said of a Manufacturer's or Mechanic's Fair to be held in St. Louis: but we are fully persuaded that such an exhibition would not be worth a tithe of its cost, unless as a preliminary step a well organized association composed of leading citizens shall have been formed and established, with a view to other objects, besides the exhibition of a few highly wrought specimens of art. Exhibitions, though in many respects highly important, are of little value when gotten up by individual enterprise. In such cases they are destitute of the social elements necessary to give them vitality and make them respectable in the estimation of the public.

The principal objects requiring the expenditure of money will be suitable buildings and a library; and even the erection and purchase of these might be dispensed with for a time. It is but reasonable to expect that some of the owners of large landed estates will donate to the association the ground necessary for the buildings, and that others will rejoice in the privilege of perpetuating their names by liberal donations of books to the institution. The next considerable source of expense will arise from the accidents and unavoidable misfortunes which may befall the members of the association; for a provision for such objects, properly guarded, is necessary to give moral force to the institution, and establish sympathy amongst its members.

We have but imperfectly described the objects and benefits of such an association, as we believe to be necessary to the growth and future prosperity of manufactures in this city.

In confining our views within the space usually allowed to our leading articles, we have been compelled to omit the notice of many interesting topics which naturally belong to the subject, and to treat others with a brevity incompatible with their importance. But we write for intelligent minds, who doubtless comprehend the subject quite as well, perhaps better than ourselves, and if we should be so fortunate as to incite some leading spirit to action, we feel persuaded that our object will be accomplished in the end.

Already some of our manufacturers, by the force of talent and industry, are taking the first rank in wealth and social influence, and could we persuade a few of these to espouse the cause which

we have endeavored to advocate in this paper, it would be an easy matter to accomplish all we have proposed. The influence of their names, and a small amount of money, compared to what they are known to donate annually to public and charitable objects, would be quite as much as the friends of manufactures in the West could reasonably require at their hands. We cannot doubt that men of so much discernment, and withal possessing generous and noble aspirations, will neglect this favorable opportunity of transmitting their names to posterity as benefactors of the age in which they lived.

ARTICLE II

From the "Railroad Journal."

The Economy of the Freight Train.

Its Construction.—The double truck, the chilled plate wheel, and, to a certain extent, the India-rubber spring, and the oil tight axle box, have built up the freight train. The truck is in universal use, except for short platform cars. The chilled plate wheel is the cheapest and strongest of any, when considered in its application to the freight train. The plate form is not only stronger than the spoke form, but insures a more even chill than the latter, as, in the spoke wheel, soft spots will appear opposite the ends of the spokes. The plate wheel does not fan the track, nor incur as much resistance from the air, and is the easiest kept clean.

The India-rubber spring is lighter, makes fewer joints, and generally gives less trouble in keeping it in repair, when compared with other springs. Lightner's axle box is very generally used for convenience, and for its great economy in oil and attendance.

The size of an eight-wheel box freight car is usually 28 feet by 8½ feet, and 6½ to 7 feet deep. The wheels are generally of 30 inches diameter. The cost of such a car, with oak frame, is generally $500 to $600. For an open platform car, otherwise the same, $520. The weight of a box car is from 12,000 to 16,000 lbs., according to the strength of its frame, axles, etc.

The "swing beam" generally used in passenger cars has not been used to any extent in freight cars, consequently the latter are more rigid upon the track. The "centre bumper," or the ar-

rangement by which the longitudinal contact of the car is made only in the axis of the train, is in universal use in this country, on all cars, and reduces the resistance of their passage around curves. Upon the Baltimore and Ohio railroad, a "continuous draw rod" is used, by which no car in a train is strained beyond the force necessary to pull its own weight. A very good brake for any eight wheel car is Steven's double brake. The wearing sides of the brake heads are faced with wood, with leather, or with wrought iron. The Erie cars have wrought iron brake shoes, which produce less friction, and are consequently less liable to injure the wheels by sliding them on the rails, and have an advantage in keeping a smooth surface for the tread of the wheel. There are but few roads which use "safety beams" under their freight cars to support the axles in case of their failure.

The adaptation of Myers' cylinder car, for all kinds of self-adjusting freight, as coal, grain, ground plaster, potatoes, lime, sand, etc., etc., should commend it to a fair trial on the part of railroad managers. The condition of coal transported by it has been reported as excellent. The only objections which may be suggested against it are, that from bringing the load directly upon the track, the former may prove too rigid, and may not, from the size of its wheels, be likely to keep its position so well upon the track as a car upon smaller wheels. But these obstacles are not stated as necessarily existing. No invention is so useful but that an objection might have been predicted against it, and the success of this car, as of other important improvements, must be decided in its practical operation. Its principle is certainly the perfection of mechanical simplicity.

The Capacity and Operation of the Freight Train.—The usual load of an eight-wheel freight car is eight tons. Ten tons of live stock, or eleven tons of flour are sometimes carried. There are but few roads, however, where the general tonnage of the trade does not settle in one direction, and hence a large proportion of empty cars must be carried one way. The load of potatoes, live stock or grain—the lumber or stone—which goes *down* to be exchanged for its value in dry goods, groceries, or hardware, *up*, occupies much the greater space. Upon the Concord railroad, in New Hampshire, two-thirds of all the freight cars which went over it in 1852, from the upper railroads to Boston, returned empty. On the Reading road, of course all the coal cars return to the mines empty. Consequently the average weight of freight per train cannot equal the weight of the cars in which it is carried. The average weight of freight carried per train, each way, on the Erie road for 1852, was 73 tons, requiring a weight of cars averaging 149 tons, or but one-third of the whole weight of the train being the weight of its load. On the Northern railroad 74 tons were carried with a weight of 150 tons of cars, engine and tender, or 115 tons

of cars. On the line of the Albany and Buffalo railroad, for the same time, the average of freight per train was 63.35 tons; the cars alone weighing 156 tons per train. This was the average of the four roads from Schenectady to Buffalo.

The length of the freight train is limited commonly by the power of the engine to draw it. Upon the Erie road 13 loaded eight-wheel cars is the full load for engines of 33 tons weight running from Piermont to Port Jervis, while 30 of the same cars are a common load over the Delaware Division. The difference comes from the grades on the Eastern division exceeding those of the other division. The most advantageous and economical application of locomotive power occurs at a speed of 10 or 12 miles per hour; and freight engines should be designed for that speed, by giving them a long stroke of piston or a small wheel. We shall discuss the freight engine hereafter. There is generally no necessity for a high rate of speed for freight trains. An article of regular and constant delivery, imperishable in its nature, can be carried at a speed consistent with an economical transportation without embarassing the trade. There are very many objections to high speeds;—the greater force of the blows upon the track, the increased strain on curves, the evident diminution in the effect of the power, are all opposed to a high rate of speed, where no necessity exists for its maintenance. Where a train of passengers, weighing 75 tons is driven 30 miles per hour, a freight train weighing 300 tons should not go over nine or ten miles per hour. This particular policy is adapted to the heavy through freight of great roads, especially such as have to be operated through the night, whereby a train can make its proper time.

The general weight of the Reading railroad coal trains is 700 tons of 2000 lbs. These are of ninety cars, weighing 5600 lbs. each, and loaded with 10,000 lbs. each.

There are an engineer, fireman and conductor to every freight train, besides one brakeman for every five to ten cars. On the Ogdensburg railroad one brakeman is employed for every five cars.

As to the loading of trains, the heaviest freight will of course be placed at the bottom, and be uniformly distributed. All self-adjusting freight, as coal, grain, sand, etc., will be loaded and unloaded by the help of spouts or scoots. Live stock, with proper platforms, load themselves. Long lumber is generally loaded,

each end, upon a short platform car, which are connected by a long shackle bar. The advantage of long lines in respect of the less handling of freight, tends to reduce the expense of transportation. The Erie road enjoys a favorable position in this respect, and all of its through freight, running from pier to pier, a distance of 446 miles, receiving and delivering from vessels at each end; and doing a business for branch roads in which there is but one transfer of freight (either a reception or delivery), reduces this item to its least expense.

COST OF TRANSPORTATION OF FREIGHT.

The item of the expense of moving one ton one mile has never been so well ascertained as since the New York State laws compelled the apportionment of the expenses of railroads to the distinct heads of passenger and freight transportation. From the report for 1852, made up by the State Engineer, Wm. J. McAlpine, Esq., we are enabled to make up a statement of this expense from the business of the three great freight lines of N. Y., the Erie, the Central, and the Northern. We have calculated these statements, in each case, from the reports returned by the different roads, and have not relied at all upon the *tables* appended to the reports, many of which contain very serious errors, typographical or otherwise.

The first column gives the expenses per ton of freight for one hundred miles run upon the Erie road; the second gives the cost per train of 73 tons for the same distance. The next seven columns give the expenses and averages for the lines composing the Central line. The last two columns are for the Northern road. The items of the Albany and Schenectady road are not fully stated, and the line is not entirely a favorable one for comparison. The averages are taken for the 4 roads from Schenectady to Buffalo, with the single exception of labor of loading and unloading, which should, of course, be averaged between all the roads—the Albany end of the road doing the most of this work:—

EXPENSE FOR TRANSPORTATION OF FRFIGHT.

	Erie R. R. per ton for 100 miles.	De.p.train of 73 tons 100 miles— 149 ton c's.	Albany and Schenectady. as pr. Erie R.	Utica and Schenectady.	Syracuse and Utica.	Rochester and Syracuse.	Buffalo and Rochester.	Aver. of four last roads.	CentralRR 63.35 tons 100 miles, 156ton c's.	Northern R. R. one ton per 100 miles.	N. R.R. 74 tons p. 100 miles with 115ton c's.
Cost of maintaining way.....	$0.167	12.19	.....	0.175	0.337	0.263	0.247	0.256	$16.22	0.209	$15.46
Repairs of Locomotives.....	0.103	7.52	.....	0.062	0.156	0.112	0.102	0.108	6.84	0.091	6.74
do. Freight Cars.....	0.071	5.18	.....	0.087	0.122	0.182	0.121	0.128	8.18	0.076	5.62
Incidental charges, repairs of machinery, watchmen, &c...	0.250	1.81	.....	0.030	0.030	0.025	0.016	0.025	1.58	0.053	3.92
Office expenses, Agents, &c...	0.062	4.53	.....	0.036	0.134	0.061	0.106	0.084	5.32	0.150	11.10
Loading & unlod'g, porters, &c.	0.105	7.66	1.100	0.046	0.055	0.055	0.175	0.286*	18.12*	0.157	11.62
Wood and water stations	0.003	.22	0.018	0.012	0.019	0.023	0.026	0.020	1.27	0.014	1.04
Conductors.....	0.091	6.64	.....	0.029	0.032	0.047	0.053	0.040	2.53	0.087	6.44
Engineers.....	0.083	6.06	0.190	0.051	0.078	0.073	0.120	0.081	5.13	0.052	3.85
Fuel and cost of preparing.....	0.190	13.87	0.360	0.200	0.260	0.180	0.210	0.210	13.30	0.083	6.14
Oil for Engines.....	0.030	2.19	0,036	0.021	0.013	0.057	0.026	0.029	1.84	0.011	.81
Oil for Cars.....	0.022	1.61	0.022	0.035	0.026	0.011	0.026	0.025	1.58	0.014	1.04
Damages to persons and prop.	0.037	2.70	0.023	0.008	0.053	0.058	0.045	0.041	2.60	0.011	.81
Superintendence	0.011	.80	.....	0.015	0.028	0.006	0.014	0.049	3.10	0.046	3.41
Contingencies	0.011	.81	.....	0.032	0.062	0.006	0.025	0.031	1.97	0.092	6.81
Total.....	$1.011	$73.79	.....	$0.839	$1.405	$1,159	$1.312	$1.413	$89.51	$1.146	$84.81

* Average of five roads from Albany to Buffalo.

We cannot arrive so well at the cost of transportation upon the Massachusetts roads, as no apportionment of expenses is made under the laws there. It would appear in theory, and the result is confirmed by practice, in this State, that such an apportionment can be made. The freight business of a road of any importance is generally conducted separately, except the pumping of water, switching, maintaining way, superintendence, &c., and these charges should be taxed upon freight transportation in proportion to the receipts from source. Fuel must be measured separately for each class of trains. But the expense for stations, engines, cars, conductors, engineers, men for unloading, and damages, can all be easily divided upon any large road.

The last report of the Baltimore and Ohio road gives the items of expenses of freight transportation, as follows:

	Per 100 tons 1 mile.
Repairs of road, watching Bridge and pumping water...	$0.347
Repairs of engines	.104
Wood and coal	.071
Labor on do	.023
Oil and waste for engines	.036
Engineers and firemen	.097
Repairs of cars	.084
Oil for cars	.004
Conductors and Brakemen	.164
Pay of Agents and Clerks	.023
Labor in transportation department	.032
Other general expenses	.048
	.933

The following estimate is made for the expense of running a freight train upon the Reading railroad, and appears in the report of that road for 1852:

Wages of 1 Engineer	$3.00
" 1 Fireman	1.50
" 1 Conductor	1.60
" 3 Brakemen, $1.25	3.75
4 3-10 cords of wood including firing up—$4.32	18.58
Oil and Tallow for engine and tender	1.16
Oil and Grease for cars	1.39
Repairs for engine and tender 95 miles	4.89
Repairs of cars 97.1 tons at '139	13.51
Depot hands and expenses	22.49
Water used	30
Damages and renewals	3.08
Equal to 77.5 cents per ton	$75.25

This does not include maintainance of way, superintendence, repairs of machinery in shops, office and Agent's expenses, etc.

THE FREIGHT ENGINE.

The freight engine must be ultimately adapted for burning coal of the semi-bituminous description. The want of favorable feeling on the part of builders, and the fact that many of the country roads are still able to supply themselves cheaply with wood, has retarded the introduction of the coal engine, but the necessity for its general use will soon become established. The relative economy of anthracite to pine wood is stated by Mr. Nicolls, Superintendent of the Reading road, as 1 ton of 2,240 lbs. of the former to 1¾ or 2 cords of the latter. The Cumberland coal is as 1 ton to 2½ cords. From the experiments made upon the Boston and Maine railroad, in January, 1850, upon burning coal, the result appeared as very nearly 1 ton of anthracite to 1 cord of spruce. But sufficient importance was not attached to the fact of a great loss in the coal engine from running only a few cars, and being compelled to wait much of the time out upon the track, wherein much coal was burned to no advantage. The result upon a great road, using both kinds of fuel, must determine the economy of each, and it is to Baltimore and to Philadelphia where we must look for information. The principle of the motive power on their great roads has been to combine the utmost strength, traction and adhesion for their engines. Strong and plain machinery has always been a good feature with them. There is but little "dead weight"—everything aids in the production of power, and the "huge steam tugs with sand boxes," as Senator Foote styles them in his report upon French's plan, still hold their standing as the most efficient and economical engines in the world. Baltimore and Philadelphia deserve the credit of the Freight engine of this country.

From the curves upon the Southern roads the engines have had their drivers clustered together forward of the furnace, thereby covering but a short rectangle upon the rails. The adhesion has been increased, experimentally, by increasing the number of coupled drivers, until the fact has become established that the whole weight of an engine supplies more adhesion than is ever required, except with an extremely large cylinder and small wheel. The distribution of the weight of an engine, upon 8, 10 or 12 points of the track, was a valuable idea, and belongs to the Philadelphia builders. The inside connection, with its unsafe, heavy and inaccessible parts, and its "elevated boiler," has never gained any ground in the south. We can say that the truck, the outside cylinder, the coupled drivers, the chilled plate wheel, the chilled tire, the coal engine and the heater, have been either first applied or generally developed in the States south of New York, and these

particular improvements form nearly all of the distinctive features of American motive power.

The freight engine, then, should burn semi-bituminous or bituminous coal; its weight distributed on say ten wheels, six of which may be coupled for all necessary adhesion; should have a "feed heater," (an excellent one has been invented by Mr. L. B. Tyng, of Lowell); a say 26 in stroke and 4½ feet wheels; the chilled slip tire and flanges on all the wheels. The truck to be adapted to take its load on its centre pintal. The size of the freight engine may be increased at pleasure to 30 or 33 tons weight if necessary, and this, moreover, upon a narrow track. The exact dimensions of boiler and cylinders cannot be stated to apply in all situations, but the practical standard of the Baltimore and Ohio engines will be found in our last weeks' paper, page 391. The cylinders should lie as nearly as possible in a horizontal line, without making the truck wheels too small; the parts should not be unduly heavy, and the drivers should not be combined in truck frames, as the weight of the parts is increased to an undue extent without any sensible advantage.

This general plan of a freight engine is of the kind which involves the fewest parts, the strongest and cheapest construction, and the least expense for operation and maintenance. It is *the engine* in all essential respects, which has become the standard upon the greatest freight lines of the country.

The Erie roads have made a general application of the centre bearing truck, and of flanges to all the drivers.

The freight engine, it would appear, requires distinctive features to adapt itself to its business. Common custom, in some parts of the country, has been to make an engine of the same style for freight or for passengers, with a difference only of six inches or one foot in the size of the drivers, and one-eight inch difference in the lead of the valve.

ARTICLE III.

(From Buchanan's Journal of Man.)

Consumption and Architecture.

As the season of building has been arrived, a few hints upon the construction of buildings, with reference to human health, can not fail to be of great service to those who are disposed to pay a thoughtful attention to health and the prolongation of life.

I believe that an immense amount of disease has been produced, and is still being produced, in our country, by a very common and flagrant neglect of the laws of health in the construction of our dwellings. I need not attempt to prove that human health depends largely upon the enjoyment of a fresh, uncontaminated atmosphere. It is not sufficient that the atmosphere should be merely free from any offensive substances which the chemist can detect; for the atmospheric causes of Cholera, Yellow Fever, and eruptive diseases, have not yet been satisfactorily detected; and every one knows that an atmosphere may be charged with most offensive and deleterious exhalations, which he can recognize by the sense of smell, when they are altogether inappreciable by chemical analysis.

In building our houses, we desire to place them as remote as possible from filthy exhalations and all decaying substances. But too little attention is given to the fact that the unwholesome exhalations which affect the atmosphere and become a source of endemic and epidemic diseases, are more concentrated near the surface of the earth, and that, if we wish to escape their influence, we should occupy the most elevated apartments possible. Houses of but a single story in height, in which the inhabitants sleep but two, three, or four feet above the surface of the surrounding country, must necessarily expose their occupants to the terrestrial exhalations, of whatever character they may be. Sleeping apartments on the ground floor are highly objectionable anywhere, but especially so in cities. Yet, if these are bad, underground apartments are far worse, and should never be tolerated in human habitations. Those who are driven by poverty to occupy such localities would far better occupy the poorest garret they can find, above the vapors of the street. If our population could be impressed with the importance of appropriating the highest apartments in their houses to sleeping chambers, it would have a material effect in retarding the spread of epidemics.

Dr. Rush informs us that, during the prevalence of the Yellow Fever in Philadelphia, those who occupied apartments in the third story were far less liable to attacks than those who resided lower. Any one who will pass frequently from a ground floor apartment, on a

street or alley, to the third or fourth story, will satisfy himself of the great difference in the purity or impurity of the atmosphere, in the higher and lower localities.

But while I would insist upon the importance of a lofty location for residence, and a lofty place of sleeping, there is a matter of much more importance to which I would call the attention of those who are building houses. Air, to be pure and healthy, requires continual circulation. Whenever confined upon any spot on the surface of the earth, it becomes saturated with the exhalations of the substances with which it is in contact; and, as much of these are usually of a vegetable or organic structure, their gradual decomposition, and the decomposition of their exhalations, produces a state of the air which is injurious to health. The surface of the earth is full of organic materials and remnants of vegetation; and, even where we do not at once recognize vegetable growth, minute plants producing some species of mould, are often present. It is, therefore, certain that confined air, unless it be confined by dry, vitreous, or mineral surfaces, is impure air. Not only is it noxious in consequence of the exhalations and putrefactions it contains, but also in consequence of its being deprived of the beneficent influence of the sun. That it is colder and somewhat defective in positive electricity, are not the only defects. There are peculiar qualities imparted by the solar light, which are neither calorific nor electric, but which have a powerful influence on vegetation, and upon sensitive human constitutions. Reichenbach's experiments on the *od force*, and my own experiments in the relations of the human constitution to light, prove that the most refrangible rays are of great importance to animal and vegetable life. Of this influence, confined air is deprived; hence, whenever dwellings are so constructed as to provide places where the air shall be confined in dark, cold, uncleanly situations, the best arrangements are made for the gradual production of disease. Even the effects of shade alone, where ventilation is not excluded, are known to be injurious.

The effects of a small portion of such air upon the human constitution are not so prompt and alarming as those of marsh miasma, and are, therefore, seldom noticed or referred to their proper sources. The noxious air generated in cellars, basements, and under-floor spaces, reaches the inhabitants of upper apartments in so small quantities that, instead of producing any marked and sudden process of disease, it operates rather as a steady tax upon the income of health, so uniform in its depressing effects as not to be appreciated. Yet, many an invalid who fancies himself improved by a change of air, in going to another residence, is really relieved by escaping the mouldy atmosphere which comes from beneath his own ground-floor.

Perhaps the majority of American houses are constructed, in

this respect, in defiance of the laws of health. Either a cellar is dug, or the house is one, two, or three feet above the surface of the earth. The cellar, even if it be walled and paved, is a damp, dark, mouldy place, which has scarcely any ventilation, and no sunshine. Even the best cellars, which are walled and paved, and kept free from decaying vegetables, rotten timber and other mouldy lumber, are often places which no one can enter without perceiving that he is in the midst of a damp, unwholesome, and oppressive atmosphere, the influence of which is at once depressing upon the lungs and upon the general vitality, from which one emerges into the sunlight and open air as if escaping from purgatory. How often, in passing along the streets of a crowded city, do we receive from mouldy cellars a blast of air inexpressibly offensive; and how can they who live above such cellars, daily inhaling small portions of such an atmosphere, escape its deleterious effects?

That the human race degenerates in damp, subterranean apartments, no one will doubt who observes the population of large cities; and they who live immediately over cellars must suffer the same deleterious effects, just in proportion as they inhale the cellar atmosphere. That such an atmosphere is calculated to produce Scrofula and Consumption, was shown by the experiments of a French physician, M. Coster. In several series of parallel experiments, made upon dogs, rabbits, and chickens, fed upon exactly the same diet—one set exposed to the open air and sunshine, the other confined in dark, damp, and cold places—he found that, while the former set maintained entire health, the latter, with exactly the same diet, uniformly became consumptive, tubercles being developed in their lungs. The laws of the human constitution being the same, we are authorized to affirm that the impure atmosphere which belongs to dark, damp, subterranean habitations, where ventilation is neglected, is directly productive of consumption.

The common sense of mankind has condemned cellars as a place of human residence, but, in a mitigated form, the evil still exists to an immense extent. Basement stories depressed from one to five feet below the surface of the earth, imperfectly lighted and ventilated, and having walls always more or less damp, if not mouldy, are still commonly occupied as apartments and offices, notwithstanding the strong testimony of experience against their use. In Louisville, where basements were formerly much in fashion, they are now seldom constructed. In Cincinnati, also, basement stories have generally given away to cellars. My own experience, as well as that of my friends, is very decided against their use. The late Prof. M., who occupied an office in a basement story, about two feet below the surface of the earth, with a paved area around it upon the same level, by which the walls were removed from contact with the surrounding earth, constituting the

best possible example of a basement story, eagerly removed to another location, and informed me that he would never, on any account, again occupy a basement office. Prof. N., and his brother, who occupied a basement story of the common character, as an office, found it so unwholesome (producing bronchial and pulmonary diseases,) as to compel them to build an office above ground. The intelligent Principal of our City High School, whose health has been materially undermined by severe pulmonary disease, informs me that he attributed it to his engagements in his occupation as a teacher in a low basement school-room. My own experience upon this subject was so decisive as to compel me, when occupying a residence with large basement apartments, with the usual damp walls, which had previously been occupied as an office, and for servants, to keep it entirely vacant, although a teacher was desirous to rent it for a school. I regarded the basement as a positive injury to the house, being not only a waste of space, but a source of noxious air, from which it was difficult to protect our children.

I am firmly convinced, that as places of human occupation, basements should be entirely abolished, and cellars should share the same fate. My reason for insisting upon their entire abolition, is, that although we may partially escape their evils by living above them, we can not entirely cut off the communication between our apartments and the cellars and basement beneath. The offensive air will ascend through crevices in the floor—through doors, windows, and stairways, and will infect the area about the house. Some houses are so constructed that the occupants of the lower apartments are but little better off than the inhabitants of the cellars and basements; wherever the cellar communicates with the chambers and halls above by an inside doorway, the atmosphere of the cellar will be continually ascending to the upper part of the house, and the inhabitants of the lower apartments of the house will be habitually breathing the noxious cellar atmosphere. Some years ago, when occupying one of the most spacious and delightful residences in this city, I found it in the most deplorable condition from this very cause. The entire space under the house, nearly fifty feet square, was occupied by large cellars, which had but the usual amount of cellar ventilation, the atmosphere being damp and mouldy, and the sunshine excluded. This immense reservoir of cellar atmosphere had free communication with the halls above, by an interior stairway, the door of which, when closed, did not exclude the passage of the air. The ordinary winds and changes of the weather drove the cellar atmosphere into the house, and the cellar-door being on the eastern side, the entire eastern half of the building acquired a damp and mouldy atmosphere from the cellar. A long hall, twelve feet wide, prevented the passage of the mouldiness to the western part of the building, except in

very damp weather, when the whole house seemed partially affected.

The oppressive and offensive character of this cellar exhalation, although due attention was given to cleanliness, was such that on entering the western door of the house I could instantly determine, by the atmosphere of the hall, whether the cellar door had been left open or closed.

This house—one of the oldest residences in the city—had always been occupied by persons of wealth and intelligence, whose vigorous constitutions gave no slight guarantee of health; yet a large portion of its former inhabitants either died of pulmonary diseases, or suffered severely from their attacks. The majority of two generations died of consumption, and I believe the third generation, now living, would have shared the same fate had they been confined to the same residence. My own family suffered from pulmonary derangement; one manifesting a slight tuberculous tendency, and I experienced myself the severest pulmonary attack I had ever known, although I adopted the precaution of occupying the most remote room from the source of disease. The entire disappearance of our unfavorable symptoms, since removing to a healthier residende, gave additional evidence of their source.

While I would condemn cellars and basements entirely, the common plan of building, in their absence, must be condemned also. The house being built above the surface of the earth, a space is left between the lower floor and the ground, which is even closer and darker than a cellar, and which becomes, on a smaller scale, the source of noxious emanations. Under-floor spaces should be abolished as well as cellars and basements. The plan that I have adopted with the most satisfactory success, to avoid all these evils, is the following: Let the house be built entirely above the ground; let the lower floor be built upon the surface of the earth, at least as high as the surrounding soil. If filled up with any clean material a few inches above the surrounding earth, it would be better. A proper foundation being prepared, make your first floor by a pavement of brick, laid in hydraulic cement, upon the surface of the ground. Let the same be extended into your walls, so as to cut off the walls of your house with water proof cement, from all communication with the moisture of the surrounding earth. Upon this foundation, build according to your fancy. Your lower floor will be perfectly dry—impenetrable to moisture, and to vermin; not a single animal can get a lodging in your lower story.

The dry brick floor will answer for the purpose to which lower stories are usually devoted, but a wooden floor may be laid directly upon the brick, if you prefer it; or if you wish a smoother surface, the bricks may be plastered over with hydraulic cement making a perfectly solid and smooth floor, when it has hardened. Painting

the brick floor will improve it by preventing any absorption of moisture from the air.

By adopting this plan, your house will be dry and cleanly; the atmosphere of your ground floor will be fresh and pure; you will be entirely relieved from that steady drain upon life, which is produced by basements and cellars—and if you appropriate the ground floor to purposes of store-rooms, kitchen, &c., you will find that the dry apartments thus constructed, are infinitely superior to the old basements and cellars. And if you place your sitting and sleeping rooms on the second and third floors, you will be as thoroughly exempt from local miasma as Architecture can make you. An additional advantage will be derived from the dryness of the walls—according to the theory of Sir J. Murray. Much of the miasmatic influence of unhealthy localities he ascribes to the frequent passage of currents of electricity, between the earth and the clouds. The dryer the walls of the house are made, the nearer it approaches to that insulated condition, which he considers necessary as a preventive against what has been regarded as local miasma.

If all the interior of the walls of an apartment were painted or papered and varnished so as to be incapable of imbibing moisture, it would be a valuable addition to the healthfulness of the room. Walls kept moist by leaks or otherwise, and thus subject to constant evaporation, are prolific sources of colds. Every one knows how dangerous it is to sleep in a freshly plastered apartment, or even when the walls are *apparently dry*, if they are not really and thoroughly dessicated.

Absolute dryness of walls, ceilings and floors, and a free circulation of air and light, are matters which a builder should consider essential in every apartment for human beings.

(The foregoing essay having been prepared for the New York Tribune, is a very brief presentation of the subject. Ventilation, house-warming, and similar subjects will be treated hereafter. The evils of cellars and basements may be mitigated by having an open fire-place in them, and occasionally building a fire to produce a draft up the chimney.)

ARTICLE IV.

(From the Mining Magazine.)

Geology of the Sierra Nevada.

BY PROF. JOHN B. TRASK.

To the Hon. J. R. Snyder, Chairman of the Committee on the Geology of the State of California.

The district of country lying north of the 40th degree of north latitude, much resembles, in some particulars, portions of the south; but it presents withal, stronger evidences of greater antiquity than the southern, in many of its parts; and portions of it were probably contemporaneous with the district south of 40 degrees, although there is no probability that all of that section can claim contemporaneous origin, for if it did, its formations should in some degree correspond; whereas, on examination, we find discrepancies that would seem to warrant us in referring them to another period.

A convenient way, then, would be the arrangement of the mineral district into three classifications, making in these, such subdivisions as may be necessary; and under this plan they would present themselves in the following order:—

First.—Primary, or central districts, included between latitude 38° 30′ and 40° north.

Second.—The northern district, included between 40° and 42° north.

Third.—The southern district, included between 38° 30′ and 36 north latitude.

I feel fully confident that whenever this State shall be authoritatively examined, that a similar arrangement will be made, both for convenience and elucidation.

Under this arrangement, then, I shall speak of the various districts in the order in which they occur.

FIRST, PRIMARY DISTRICT.

This name may be applied to this section with strict propriety; first, from the character of its rocks, and, secondly, from their distribution and association.

The rocks that compose this district are for the most part primitive, in a geological sense, being composed of granite, porphyry, trap, and other allied rocks, among which the serpentines form no unimportant part.

The rock that first emerged was undoubtedly the granite, which was ejected from beneath, and protruded through the slate, and in

many instances presents all the appearances of having flowed over the sedimentary formations; in other cases it is protruded as a single dike, often of miles in extent, with lateral veins extending into the adjoining rocks.

The next class that claims our attention is the metamorphic (changed) rocks, many of which, through the agency of volcanic heat, have become true porphyries; they are largely developed on the banks of the rivers of the country, and are a great source of annoyance to miners engaged in river mining, as they are extremely tough and difficult to break.

Closely associated with these, are, occasionally, veins of the original clay slate, from which these porphyries have been formed, holding different grades of induration, passing from a fissile clay slate into a compact rock, often in the distance of a few yards.

The serpentine rocks are next in order of the volcanic group; they are generally intrusive rocks, and are widely distributed throughout the country, and many of them present distinct lines of stratification. They have received different names from the different forms they assume; some of them being true shales, of various thickness, consistency, and composition; but all of them, in whatever form they may be found, have but the one origin (volcanic), though they may receive many modifications from subsequent causes.

These rocks, when found in the form of slates particularly, are entitled to more consideration than has been bestowed upon them by the mining community, as repositories of the precious metals.

It is to this class of rocks that we are, in a great measure, indebted for those valuable deposits of gold which the slate contains, as well, also, as the auriferous quartz veins with which they are so frequently combined. It was on these rocks that one of the greatest geologists of the age (Mr. Dana,) based his opinion on the probable value of this State as an auriferous district long before the discovery of gold; and subsequent time has demonstrated how correct and just were his opinions; and yet public opinion, even at this time, has neglected to take cognizance of this class of rocks, so far only as accidental circumstances have thrown them in their way. I think that no hazard would be incurred by expressing the opinion that this class of rocks will be found, in many cases, the prolific sources of wealth in the future, equalled only by the auriferous quartz, and excelled by none. This class of rocks, or those known by the name of chlorite, which is but a variety of this group, is represented in Mariposa county, at the locality known as Bear Valley; and a sufficient illustration of its value will be found in the excitement that prevailed on its discovery. Moccasin Creek, four miles south of Stevenson's Bar, Tuolumne county, and river, is also another point at which they may be studied with advantage.

These are but two of many instances in which the auriferous deposits have been developed in this class of rocks; and when found, it is as much an integral of the formation containing it, as the thread of gold that permeates the vein of quartz.

In addition to its containing gold, as an integral part, when unassociated with the veins of quartz, it frequently becomes the retaining medium of this metal when in contact with those veins. Hence has arisen much loss to parties who have engaged in that latter branch of industrial employment, from the neglect of attention to this important point; but we shall advert to this point more particularly when the subject of Quartz Mining engages our attention.

The sedimentary rocks of this district are of three kinds: 1st. Argillite Slate (clay slates); 2d. Conglomerates (pudding stone); 3d. Sandstone; the two last occupying the smallest area.

The sandstone formation is evidently the most recent of this group, and in some parts of this district is fossiliferous—this being the only point of importance attached to it, and this only in a scientific point of view; as a matter of economy or practical interest it will not, therefore, claim our further attention.

The principal localities in which it is found to contain imbedded fossils, are upon the Butte and Chico Creeks, and near Rich and Reeve's Bars on the first-named creek, and the fossils are of the *Miocene* period, and the bed of sandstone rests on a metamorphosed slate, which is in some parts porphyritic.

The argillite rocks of this district will command our attention before either of the other members of this group; it is superior as a member of the group, though it is interior as to position. The degradation of those rocks forms an important feature in the characteristics of the valley bottoms, and a sparsity or surplus of its debris, would, as a consequence, enhance or diminish the capabilities of the soil for agriculture; hence an attentive examination of the valley sections is imperatively demanded. It has been suggested within the past year that a large portion of this group will, at some future day, be mined for the gold it contains, mechanically, as well as other rocks that contain this metal as an integral. How soon this may take place it would be improper to suppose at this time, but the premises upon which the suggestion is based are tenable.

The conglomerates of this district will next be considered. These rocks toward the valley appear to be coextensive with the argillite, and from their position, it is inferred that their formation was posterior to the slates; in the more mountainous districts they appear in isolated masses and in small patches, rendering their study less certain. In the lower foot-hills, in many places, the group *in situ* is wanting, and in its place low, rolling, gravelly hills are the

only vestiges that mark the localities it formerly occupied. The cause of this absence in the group is found in the outcrop of heavy masses of trapean rock near the borders of the valley in these sections.

These older conglomerates have but little interest connected with them, further than geological position is concerned, except the modifying influence they exert through their debris on the formation of the valley sections; but there is a belt of these rocks in other parts of the country that will be entitled to much more and particular consideration.

Having described the principal rocks of the primary district, we will now pass to the consideration of the rocks of the northern district. To avoid repetition in our subject, in relation to its rocks, we will now state that, in addition to those noticed in the primary, the northern section contains some few that should command attention in an economic view, so far as relates more particularly to their prospective value.

The first of these rocks that will claim our attention, is a hard silicious rock, known by the common name of millstone, but in technical language *Buhrstone*. This rock abounds on the Pitt River in large quantities, and also on to the north of Goose Lake; its admirable adaptation to milling requires no comment. The value of this rock cannot be too highly esteemed in this grain-growing country, equalled by few on the Atlantic slope. The heavy expenses that are now incurred, and the future wants of the State in this particular will be obviated, and our dependent condition on foreign imports destroyed. These rocks have as yet attracted little notice, but the rapidly increasing wants of the State will ere long bring them into requisition. In addition to the buhrstone of this district, this section of the country contains some few traces of the secondary rocks, a suite almost entirely wanting, with this exception, in this country, so far as at present explored.

The existence of any portion of this suite should command our every attention; and any measure that will be likely to develope this formation, or any part of it, within the limits of this State, should meet the approbation and support of the community at large. The importance attached to this group at the present time in this country is found in the fact, that it is to this suite that we must look for a home supply of the mineral coals, if ever found within the limits of our State.

As these rocks (in form of secondary conglomerate,) have exhibited themselves in the northern district, and in those parts of the section most immediately connected with the coast line of mountains, it is to be hoped that judicious explorations in that range may develope its existence either near those points alluded to, or in other and more distant parts of the range.

From the structure of the country, it is to be doubted whether any other position than the above-named presents the slightest ground for hope that this necessary material of comfort and economy will be found in other parts than those indicated; every effort, then, compatible with prudence, should be made that will tend to elicit information on this important topic.

The frequent discovery of small patches of the mineral coal in those mountains, would seem to lend aid to the suggestion that its development in this range may be looked for with more confidence than at any other points, and a judiciously conducted examination is the only means that can be confidently looked to for this desirable end.

Aside from the two points alluded to, the northern district comports itself in the major part of its formations with the primary district, and varies from it only in a few minor particulars noticed in the sequel.

SOUTHERN DISTRICT.

This district, according to our arrangement, is included within the thirty-sixth parallel and thirty-eight degrees thirty minutes north latitude, and includes all that portion of the country denominated the Southern Mines, as well also as its valleys. The southern district, like the other two, contains many rocks in common.

In addition to these, there are also other formations, which differ widely from either of the other districts, which we shall notice in the same manner as heretofore, as our limits will not permit otherwise.

The first that will claim our attention will be the principal volcanic rocks, and among these the basaltic rocks will find the first place. It has been observed that the northern and primary districts contained these rocks, and it must now be noticed that the southern section contain them in a pre-eminent degree, compared to either of the others. Their principal northern outcrop commences near the sources of the Mokelumne, and extends almost uninterrupted for seventy or eighty miles south, having a mean breadth of ten to fifteen miles, and frequently extending much farther to the west, even to the foot-hills in some cases. The hills on the borders of the valley west of the Bear Mountains, Calaveras county, furnish an instance.

These rocks are well developed about the region of Bear Valley, Mariposa county, on the ridge to the east of this locality. At this place they may be found in several of the forms they assume,—as the dolorite amygdaloid, columnar basalt, and greenstone.

The effects of such large masses of volcanic rocks on the sedimentary formations through which they have protruded has been great, as would naturally suggest itself, and we find many of those

formations completely metamorphosed, as might be anticipated. The rocks are entitled to consideration in two points particlarly. One is the results that are likely to ensue from the passage of these rocks through the sedimentary formation, and is the production or development of mineral veins, consisting most commonly of the metals, copper, silver, &c. It is generally true that these are most abundant in the older system of rocks; but this is not always the case.

By close examination of the mining districts of the world, our best geologists have announced the fact, that rich metallic districts are dependent on the proximity of igneous rocks and axes of disturbance among sedimentary formations, and every subsequent observation has tended to confirm the theory.

On comparing metallic accumulations among the igneous rocks, it is found they are the most abundant in the underlying porphyries, amygdaloids, and trap rock, as well also the syenites. This condition, and the probable value of these rocks as a future source of wealth, will be fully comprehended when we observe that the metalliferous regions of the Andes are of this same character, and the outbursts of trap through its tertiary formations, are but a simple illustration of the condition of our own.

The second point of general importance in relation to these rocks, is their value in modifying, from their composition, other earths with which they may be combined. Too much importance cannot be attached to this point, for it is through this agency that a large portion of our soil is rendered valuable for agriculture; and I hope I may not be charged with sectional feeling when I say, that in this lies one of the grand secrets of the superiority of the bottoms of the southern sections, coupled with the debris of the calcareous formations which also lie to the east of these valleys.

The next important volcanic produet that will claim our attention is the large extent of the volcanic tufa that covers superficially an extensive area of country in its aggregate.

This tufaceous deposit becomes most fully defined as an overflowing mass on the ridge that forms the south bank of the Mokelumne, and is found in nearly all the districts to the east and south as far as the Stanislaus. It was very properly denominated a volcanic brecia by Mr. Tyson, on the first-named ridge, though in other sections it loses this character. This deposit covers the diluvial drift in many places, as well also the large mammalian remains that have been exhumed within the last two years. It is interesting and important, as it points to volcanic action at a comparatively recent date.

Since its deposit, strong floods have operated in these sections (which were probably pent-up waters, forming lakes in the inte-

rior), as the outliers of the surrounding hills fully indicate, as well also as the extensive table-lands that formed their shores. The towns of Vallecito, Murphy's, Douglass' Flat, and the vicinity of Sonora, furnish most admirable examples of the former existence of lakes in these sections. This tufa overlies the drift that contains the auriferous deposit of these placers, to the depth, in some cases, of one hundred feet, and even greater.

Primary Limestone.—Notice of this rock has been deferred until this time, from the fact that it occupies a much greater area in the southern sections. Its extent may be said to be included between the American and Merced Rivers, and following a line deflected but a few degrees from the parallelism of the chain; this line is not continuous, but is broken at short intervals, at times by the intrusion of volcanic rocks, at others being covered by alluvium in common with the covering of the hills.

Its situation appears to be not far from midway between the foot hills and summit proper of the range.

This suite of rocks has been tapped in many points, and a highly remunerative business is now conducted in preparing lime for the market, and its finer qualities for ornamental architecture. This formation is capable of producing varieties of marble that it will be difficult to excel from almost any part of the world. The town of Volcano, Calaveras county, affords a wide field for operation in this branch, and the beauty of the Ringgold marble requires no comment at this time.

There are many other places, too numerous to mention, in which a profitable business can and will be conducted in this branch of industry. Some portions of the more northern sections contain this rock in quantities sufficient for all the probable prospective wants of these sections. It is found in the Yubas, near the Slate range, and on the Feather River, near the Rich Bar, and Sucker Ripple, and also in other localities in these districts. The Salmon, and other streams in the extreme north, also furnish it.

The southern district contains also a very recent conglomerate, the disturbance of which was probably attributable to the more recent convulsions that have been in action in these sections. It possesses but little interest, further than the testimony it may furnish, in a scientific view, in elucidating the early and later history of this portion of the continent; it will, therefore, be dismissed with this brief allusion.

Recent Sandstone.—Between the Merced and Tuolumne Rivers there exists a bed of recent sandstone, which is probably nearly or quite contemporaneous with the last-named conglomerate. This formation underlies the principal portion of the ground between those two rivers for a long distance to the west; hence during the rainy season this district is much more firm and dry, and it is a

point eagerly sought for by the teamsters at this season, and for the most obvious of reasons. It finds a place in this report more for the purpose of illustration than otherwise, and also as a recuperative agent for some points of the adjoining districts, to be spoken of under the head of agriculture.

In review of the object before us, we find that there are evidences of at least three successive periods in which this portion of the continent has been involved; the three periods of upheaval being interrupted by long periods of repose.

In the *second* upheaval the large portion of the extreme northern district was developed, which was, probably, nearly contemporaneous with the development of the south. A long interval of quiescence is here manifest, during which the land became inhabited by mammals of varied species.

In the *third*, we find that these species were obliterated, and their remains lie buried beneath the evident causes of their destruction.

Fourth. The granite appears to have been the first of the volcanic group, and that it broke through the slate. The other trapean rocks appearing within the latter part of the first period.

Fifth. The older granite appears disturbed by more recent rocks, as well also as by more recent granites of the same species. In this particular the granite suite resembles the Heidelberg, presenting three distinct veins of different ages.

Sixth. The serpentine rocks—many of them appear to have been contemporaneous with the second period of disturbance, as is shown by their cutting through the older rocks.

Seventh. We are led to infer, from the manner in which the trapean and other volcanic rocks have forced their way through the sedimentary formations, that these rocks must prove metalliferous, as analogy and experience have proved in other parts of the world. Time will not permit to discuss the local geology of the State in a separate and distinct subject; it will, therefore, be considered under the head of Mining Resources, which we shall now attempt to elucidate.

ARTICLE V.

From the Polytechnic Journal.

On Pruning and Training Grape Vines.*

The pruning, as well as the method of training the vine, belongs to the most important parts of vine culture, which have the greatest influence both on the quality and quantity of the wine. On the choice among a variety of well-known methods, depends the success of a vineyard, as well as its fruitfulness, and the quality of the wine.

Although the pruning of the vine is closely connected with the mode of training, yet this connection is never so close that the one exclusively depends on that of the other. In one and the same mode of training, many methods of pruning may be used; and one and the same method of pruning can again bear different modes of training.

The close connection of these two subjects makes it very difficult to represent it properly. We are at a loss with which first to begin; and hence it is that some treat first of the pruning, while others commence with the mode of training.

I have preferred to speak first of the method of pruning, because, when this is faulty, the best mode of training does not succeed in securing a good and well-conditioned grape-vine. But in both, the flexibility of the vine is shown in all possible forms and magnitudes. It may appear as a plant of some feet in hight, and also as a tree, according to its management in respect to the soil. In every form, it is fruitful, and rewards the diligence of the vine-dresser, if it is only treated properly with reference to its locality.

As to the difference in the importance of pruning and training, the first, if it is properly carried out, is most effective for the preservation of the vine, because it prevents it from producing too many grapes, and the early enfeebling arising therefrom; and it also operates as well in strengthening and improving the grapes, for, if the shoots are shortened, a larger quantity of sap goes to the remaining wood, which enlarges the sap vessels, and this expansion seems to promote the better development and improvement of the fruit itself.

The attention, in a good method of training, is more directed to keeping the vine upright, and protecting the shoots from growing irregularly into each other, thus giving a proper place for the fruit, and effecting a perfect maturity, and, above all, exposing the soil to the influence of the sun and the air, so that the vegetation of the vine may be developed as rapidly as the climate and situation will permit.

* Translated from Babo's work, Der Weinbau.

Both objects must so far correspond, that in cases of powerful growth, they must furnish longer shoots, as well as an opportunity to fasten them, while in weaker vegetation, the pruning and mode of training are so managed that they require almost no support, because the vines are in a state to sustain themselves. A longer pruning requires an additional artificial support; by a shorter one, stakes may be wholly dispensed with.

By pruning the vine, as already alluded to, a certain preponderance is sought to be effected in the supply of the nutritious substance by means of the roots, in addition to that which the plant receives from the air. If we observe the process of vegetation of a pruned grape-vine, and the treatment founded on it, in the course of a summer, we immediately see what powerful shoots it produces in the spring, in order partly to use the sap supplied from the soil in a greater quantity, and partly also to form the organs, by means of which they can appropriate to themselves the necessary substance from the air. The vine-dresser lets either the shoot develop itself undisturbed, or shortens it again. In the latter case, if the equilibrium of the action of the root, with the capacity of the limbs and shoots to take up the sap is not sufficiint, the water shoots grow, which, however, the vine-dresser must not remove when the shoots are shortened in the spring. Thus the vine grows on till towards September. By means of the leaves (which, in consequence of the excess of sap caused by the pruning, become more strongly and perfectly developed, and so that their functions act more quickly and perfectly,) the communication with the air is soon again restored. This proceeds in its regular course, and the plant again acquires the equilibrium in reference to its sources of nutrition. Nothing stands in the way of the constant development and increase of all the various parts of the vine; at the end of the summer the growth is completed, and the vine has all the shoots again replaced which were taken away from it by pruning. As at this period of the year the sap recedes, there is no further reason for allowing all the green shoots to remain, therefore the vine-dresser's care is now directed to the grape, and when the leaf or the shoot prove a hindrance in maturing the fruit, they may be taken away without injury to the development of the vine for the next year.

If no disturbance takes place by the weather, or bad and improper treatment, the proper wood is formed for the next year. In the buds lie the future fruitfulness, but not as in an orchard tree, in which certain fruitbuds exist that are never in a condition to put forth branches; but the fruitfulness of the future shoot depends upon the manner in which the vessels in the buds have been perfected, so as to form a shoot that is strong for bearing; but this should not be of a growth too powerful, for, in that case, the formation of leaves preponderates and the setting of the grape is thwart-

ed, the sap being, in this case, employed in the formation of leaves.

By means of the vegetation of the previous summer the vine is prepared for the future pruning, but by pruning, the equilibrium which has been established at the end of the summer, between the flow of the sap upward from the roots and the shoots, is again destroyed, and the process of a more perfect development of all parts of the vine begins anew, in consequence of this preponderance of sap.

If we look at wild vines, and their circumstances of vegetation, we may recognize the correctness of what has been now said. Not being checked and restrained, in the first pressure of the sap, the equilibrium between the nutrition from the soil and the air, as well as between the nutrition from the soil and the number of roots corresponding thereto, is not established; the vessels do not become enlarged, the tendency to form new shoots is frustrated, and therefore these are very seldom stout and strong, and the leaves, as well as the grapes, remain small and inconsiderable. If such stocks suffer any injury on the root, so that the nutrition flows upward from them more scanty, the vine falls back and gradually dies.

When the pruned vine, in the course of vegetation, tries every year to recover its equilibrium, in respect to the nutriment from its root and the number and length of the shoots formed, then the object of the pruning is to destroy the equilibrium every spring, and by this equalizing being continually again disturbed, a more powerful growth is produced, which improves the fruit, as we observe in comparing the pruned with the unpruned vines, without causing any retardation of the vines, because the summer vegetation always again establishes the equilibrium.

The preponderance of the nutriment from the roots is sought to be obtained by the cuttings. Hence the young vines are pruned to their small heads in the first year. It might be supposed that thus the nutriment from the air would be checked, but this is not the case, for so long as no leaves generally exist (as in the early spring), they do not appear necessary, but as the leaves appear, they replace and make up, by a greater vital activity, the necessary number.

But salutary as a certain excess of nutrition from the soil is to the growth and fruitfulness of the vine, it must not exist in too great measure. If this is the case, the whole process of formation exceeds its proper bounds, the swelling of the vessels appears to become too powerful, and then only operates in the formation of leaves and shoots, grapes do not set, and those that already exist are transformed into tendrils. This may be observed when very vigorous vines are cut off too short, or when, by any particular circumstances of the season, the growth of the vine is unusually

excited, in which case, the grapes, according to the expression of the peasants, grow over, or change into tendrils.

If the reverse is the case, and there is either hardly none, or only a slight excess of sap, then the growth approaches nearer to the nature of a wild unpruned vine. The leaves and the grapes remain small, and if the root is too feeble to furnish a greater quantity of nutritious sap, or if perhaps the soil, by its meagerness, contributes to this result, the vine becomes at first unfruitful, and in the end wholly perishes.

To keep the vine in the right state, the length of the pruning should be proportioned to the quantity of sap. This is the greatest art of an experienced vine-dresser, whereby he has not only the fruitfulness, but also its permanence and the quality of the wine, in his power. In pruning, he must have a particular care that he not only always prunes somewhat less wood than the vine might apparently bear, but he must also avoid pruning too little, in order that the growth of the vine may not be too much excited. He must judge of the degree of these relations, and especially how the vine is conditioned as to its roots; the less there are, the less must be cut off. It has been supposed that, according to the kind of vine, the pruning must be longer or shorter, but this is wholly incorrect. We must judge only according to the power of growth of the vine, and if the dwarf kind of vines, as, for instance, the Riesling, in certain localities, grow rankly, they must be pruned like kinds of more powerful growth. But if the rank-growing vine, on a meager soil, grows too weakly, they need not be pruned any longer than the dwarf kinds. It may therefore be laid down as a rule, that the condition of the soil, as to its power of growth and richness in manure, must furnish the standard for the mode of pruning, whether it be long or short; only on a soil of equal condition, regard is to be had to the kind of vine itself, and among these, that sort must be pruned longest which is the most active in growth; *i. e.*, which by the power of its roots draws from the soil the greatest quantity of nutritious substance, and which is in the best condition to use it.

Young vineyards, planted with vines of the dwarf kinds, must often be pruned longer in the first year than in the succeeding ones, because they will otherwise bear nothing. These form, on the whole, no exception, but belong to those cases in which the particular circumstances of the soil call forth a stronger activity of growth.

The answer to this question, where the longer or shorter pruning must be used, is therefore simple, and in theory easily established. But that acumen in judging of the power of active growth belongs to practice, which is only possessed by the experienced vine-dresser who has carried on the business for a long time, combined with gifts of observation and good understanding, and not

merely mechanically. But if, owing to the power of growth in the soil, and, as a consequence of this, the strong or feeble growth of the vine is cited as the standard, according to which the vine-dresser should prune long or short, another rule follows, which is often disregarded, but when omitted, causes destruction in many a vineyard. Long or short pruning must not be decided upon empirically according to an adopted method, but more according to the growth which the vineyard showed the previous year. As it is usually believed that it is correct to prune long or short, according to the kind of the vine, and very often the same way of pruning is carried on every year, whether the vine may have grown strongly or not. This procedure is incorrect, for if the vine in the previous summer only forms feeble wood, it is easy to understand that its roots have also grown only a little, or that many must have perished. If this is the case, the entire ruin of such a vine can only be prevented by shorter pruning, as the roots are not sufficient and strong enough to furnish the nutriment for a heavy growth. But if the growth was too great, then the reverse condition must take place, and by too short a pruning, the fruit-bearing buds, which have advanced forward, may be destroyed. For these reasons, many writers justly recommend that, after a wet summer, in which the growth is greater than in a hot, dry season, more of the branches should be pruned, in order to preserve the fruit-bearing buds.

It is likewise known that a longer method of pruning causes more grapes, which otherwise are lost in the buds cut off. But in this case, unless the active power of growth of the vine is aided by specially strong manuring, for a few years, while thus the stock is strained more than is necessary, according to the expression of the vine-dresser, they kill themselves by over-bearing, and once injured in that way, it is very hard to bring the vine again to its proper state. In the pruning, not only the fruitfulness of a single year, but also its continuance for many years, must be kept in view.

A practiced vine-dresser, by means of the length of pruning, combined with a reference to the other circumstances, can regulate the active power of growth of his vine at pleasure. If the vineyard (for instance, a young stand,) has too strong an impulse, he weakens it by a longer pruning, for many years, until he has reached the right proportion. If, on the contrary, it is too weak, he seeks, by short pruning, to excite the growth till the desired strength again appears. But the right degree of active power of growth is that in which the vine sets grapes most abundantly, without being exhausted, and does not produce too many leaves, nor changes set grapes into tendrils.

As the active power of growth and the mode of pruning the vine are so closely connected, it is natural that the manuring of the vineyard must exert a great influence on the length of the pruning. We shall speak further of this in the chapter on manuring.

If the vine is not in an unnatural situation, for example, on a too fat or too meager soil, if it is adapted to its nature, and we do not observe that its shoots are particularly strong or too weak, the kinds of the vines are to be clearly distinguished from each other, as also, for the most part, the place of the fruit-bearing buds, which vary very much upon the shoots. The dwarfish, small kinds, having slender shoots, the fruit-bearing buds are very close to the two-years' old wood, from which they have grown; while in the kind with strong shoots, the buds are further from the older wood. When, in pruning, the judgment is to be formed as to the power of growth, the vine-dresser must never lose sight of the peculiarities of the kinds; he may otherwise allow in the dwarfish kinds of vines too much needless wood, but cut away the fruit-bearing buds in vines which produce strong shoots. In extraordinary cases, the vines may change their nature to such a degree that scarcely any true peculiarity is left.

Besides the reasons of which we have treated, why and how vines should be pruned, we should have respect also to the constancy of the mode of training, as regards their hight and form. Without pruning the vine into a permanent form and size, it would grow gradually into a tree. But the maintenance of an equal hight by pruning the growth of young shoots, yet offers further advantage for a constant rejuvination of the old wood of the vine, to which the vine-dresser must pay much attention.

But, in order to understand properly even the pruning, the vine-dresser must accurately distinguish the various parts of the vine. The relation of one part to the others must not be unknown to him, and he must become acquainted with all the peculiarities, in reference to the fruitfulness of the whole vine. He must therefore especially distinguish:

1. The stem from the division of the principal roots to the first division of the principal limbs. This part of the vine first passes into wood, and becomes hardened. Where it still serves to guide the sap upward, sucked in from the roots, its activity in the formation of new shoots is almost wholly extinct, and only in cases of a considerable loss of the shoots, the existing buds can be forced to penetrate the hardened bark. Hence new shoots show themselves, on such wood, only by way of exception, and these then usually are set so superficially that they are not fitted for the formation of new limbs. They are, therefore, usually unfruitful.

But if such shoots are strong, and firmly set, they can often be used for the renewal of the vines. They must, therefore, be immediately taken care of, and pruned back to one or two buds, in order that they may be invigorated, if they are to be used for the renewal of the vine, or particular limbs. To induce the production of shoots, we must free the stem from the dry woody bark by an application of lime. The buds which are dormant beneath it

will then be excited to vegetation. We can also aid the shooting forth of the buds, if it is desired, by making deep cross cuts in the stem or limb with a knife or chisel.

2. The limbs are the continuation of the stem, and if not considerably younger than the stem, they partake of all its peculiarities. They convey the sap from the stem to the younger shoots, and, on this account, are important, because they serve as the medium for bringing the various green portions of the vine upon those places where it is desired to have them. Also, by gradually forming new shoots lower down, the whole plant may be renovated, so that we are in a condition to bring down nearer to the ground the limbs that are too high; hence strong shoots, growing on the lower part of the limbs, are to be well taken care of.

3. The young shoots may again be subdivided into:

(*a.*) Shoots that are two years old, pruned the previous year, the wood being at that time a year old.

(*b.*) Those which have grown the previous summer, and first formed a proper woody texture in the preceding autumn or winter, and were pruned, and therefore are one year old or proper fruit-bud shoots, from which, during the next summer, the fruit-bearing shoots are produced.

(*c.*) The two-year old wood, if it has not been wholly removed by pruning, gradually passes over into the nature of limbs, and becomes old. Such additions increase the size of the vine too much, when they are not avoided by a young shoot growing down upon the limb. But, in pruning, the two-year old is particularly to be noticed, because, in the year when the pruning takes place, it forms the basis on which the fruit-bud shoots must be pruned. The shoots which proceed directly from the stem, or the old limbs, as a general rule, never produce grapes the first year. The two-year old wood, therefore, in a certain degree, forms the medium between the old hard part of the stem and the soft part of the year-old vine, and the fruitfulness of the latter depends on it. It is only when the shoots of a vine are, on the whole, sickly and feeble, single grapes are produced on the shoots proceeding directly from the stem on the limbs. The vine-dresser must therefore direct his attention to this point, *that the one-year old fruit-bearing limbs always set on two-year old wood, and not upon older*. If he neglects this rule, his product is only accidental.

In the choice of the one-year old wood for pruning, there arises the question, whether on the two-year old wood, we should take for pruning the lower or higher shoots? As to fruitfulness, they are alike; we must, therefore, look to the form of the vine, and in order to preserve this, and not to allow the vine to run high too quickly, we must try to keep the vine low by taking off the uppermost shoots.

A particular attention is to be paid to leave between the proper fruit-bearing shoots and the head, reserved spurs, which enable

the vine-dresser to reduce the whole vine, or to bring down, in the next year, the bearing shoots to a lower place. If there is a chance to leave a spur between the fruit-bud shoots and the limbs, on the two-year old wood, such a spur must be left thereon, and if this is not the case, then a shoot from the limb must be used for that purpose. The main object of the spur is to produce fruit-wood. When such fruit-wood grows grapes on them it is well, provided they do not prevent it from getting a strong fruit-bud shoot for the next year. (Copied from "The Farm and Garden."

Arkansas Marble.

Every product of the State of Arkansas attracts interest. An earnest hope is entertained that the internal resources of the State will firmly sustain her bold system of Internal Improvements. Every month we find new evidence to strengthen our faith in her prosperity.

The elegant Steam Packet *Amazonia* plying between St. Louis and Memphis is a precursor of more intimate and profitable relations between Missouri and Arkansas. The establishment of a regular packet to maintain direct trade between St. Louis and Little Rock, might not only be profitable in itself, but also tend strongly to accelerate the construction of the Arkansas and Missouri Railroad.

We note an interesting editorial in the Memphis "Eagle and Enquirer," of 9th July, on the subject of Arkansas Marble.

"ARKANSAS MARBLE.—We have been shown, at the yard of Messrs. White and Ameis, on Adams street, a specimen of variegated black marble, taken from the quarries of White River, in Arkansas, which for beauty and fineness we have never seen equalled, even by the Egyptian article. This may seem extravagant commendation of home products; but an examination of the Arkansas specimen, and a contrast with that imported, will satisfy any one that what we have stated is true. It is not only finer in texture than any Italian marble, but is susceptible of a much higher polish than the Egyptian, from which our finest articles of furniture, mantle pieces, tables, &c., are made. Messrs. W. & A. have received a block of this marble, from which they design manufacturing mantle-pieces, in the best style of the art. When made, they will speak for themselves against the necessity of our going abroad for marble, when we may, at our own doors, as it were, procure a finer article than can be got from foreign quarries."

JOURNAL OF INTERNAL IMPROVEMENTS.

Arkansas and Missouri Railroad.

This enterprise through Arkansas, from Missouri to Louisiana, is constantly gaining ground. Messrs. PATTERSON, BEVENS and AMBLER, of Batesville, as by published card, were to take the field from Chalk Bluff to Jacksonport, on the 18th July, soliciting subscription for stock, and right of way, and have agreed to continue in the field until the 3d of August. We hope to hear, next month, an encouraging report of their success.

On the 12th July, 1858, Pulaski County subscribed to the capital stock of this company $5,000 of the internal improvement fund, and paid over 20 per cent. in cash, on the petition of ROSWELL BEEBE, Internal Improvement Com. of the County, and President of the Company, who in his petition imparts the cheering intelligence that the C. & F. Co. "have obtained near $100,000 of private stock subscriptions upon which five per cent. has been paid to the Company, who have directed negotiations to be made by the President, for the immediate employment of a corps of engineers, to survey this main line of road preparatory to a beginning of the work."

Mr. BEEBE has also sent circulars to the agents of the Co. requesting them to solicit county subscriptions of the internal improvement fund along the line.

As this investment of this fund is in strict accordance with the law, and will be profitable, and moreover as this enterprise is popular, the other counties along the line of the road will doubtless follow the example so wisely set by Pulaski. When this course is pursued by the respective Counties from Missouri to Louisiana, the work will necessarily increase in popularity, and be strengthened in credit, and the Company will be more deserving of the transfer of the lands granted to the State for the main trunk; whereas, if the Legislature were convened now, they might be compelled to adjourn, with a sense of dissatisfaction at having been prematurely called together with an undigested, even unsuggested system of action; for what could the Legislature do at present more than has been done, except approve the course that has been pursued by the Governor of the State and the President of the Co., advise perseverance in the same, and resolve to meet again, when the time for their action might arrive.

If the individuals and all the counties along and adjoining the line of the road subscribe liberally to the stock, then the Legislature will, with dispatch, transfer the lands to the Company, the counties will be doubly re-imbursed, the road speedily built, money flow into the State, with a rush of business and population, and the lands rise in value several hundred per cent.

THE INTERNAL IMPROVEMENT FUND of Arkansas is an interesting item, and as a portion of it is being applied to the stock of the C. & F. Co., we herewith present an account of it as published by the Treasurer of the State, in the *True Democrat*.

Statement of Distribation and Payment of the *Internal Improvement Fund* to 1st July, 1853, inclusive, showing the total amount distributed, the amount drawn, and the balance due each county on that day.

COUNTIES.	Total Distributed.	Amount Drawn.	Balance on 1st July, '53.
Arkansas,	3801 06	2707 39	1093 67
Ashley,	3801 06	1835 33	1965 73
Bradley,	3801 06	2707 39	1093 67
Benton,	3801 06	2707 39	1093 67
Calhoun,	2968 75	1875 08	1093 67
Columbia,	1965 71	nothing	1965 71
Carroll,	3801 06	1835 34	1965 72
Crawford,	3801 06	2707 39	1093 67
Clark,	3801 06	2707 39	1093 67
Chicot,	3801 06	1325 47	2475 59
Crittenden,	3801 06	2707 39	1093 67
Conway,	3801 06	2707 39	1093 67
Dallas,	3801 06	2707 39	1093 67
Desha,	3801 06	2707 39	1093 67
Drew,	3801 06	2707 39	1093 67
Franklin,	3801 06	2707 39	1093 67
Fulton,	3801 06	2707 39	1093 67
Green,	3801 06	2702 39	1093 67
Hempstead,	3801 06	nothing	3801 06
Hot Spring,	3801 06	2707 39	1093 67
Independence,	3801 06	2707 39	1093 67
Izard,	3801 06	1835 36	1965 70
Jackson,	3801 06	2707 39	1093 67
Jefferson,	3081 06	2707 39	1093 67
Johnson,	3801 06	2707 39	1093 67
Lafayette,	3801 06	1835 37	1965 69
Lawrence,	3801 06	2707 39	1093 67
Madison,	3801 06	2707 39	1093 67
Marion,	3081 06	2707 39	1093 67
Mississippi,	3801 06	2707 39	1093 67

Monroe,	3801 06	2707 39	1093 67
Montgomery,	3801 06	2707 39	1093 67
Newton,	3801 05	2707 39	1093 66
Ouachita,	3801 05	2707 39	1093 66
Prairie,	3801 05	2707 39	1093 66
Perry,	3801 05	2707 39	1093 66
Phillips,	3801 05	2707 39	1093 66
Pike,	3801 05	1835 36	1965 69
Poinsett,	3801 05	1835 35	1965 70
Polk,	3801 05	2707 39	1093 66
Pope,	3801 05	2707 39	1093 66
Pulaski,	3801 05	2707 39	1093 66
Randolph,	3801 05	2707 39	1093 66
St. Francis,	3801 05	2707 29	1093 66
Saline,	3801 05	2707 39	1093 66
Sebastian,	2743 26	1649 60	1093 66
Searcy,	3801 05	2707 39	1093 66
Sevier,	3801 05	2707 39	1093 66
Scott,	3801 05	1835 34	1965 71
Union,	3801 05	2707 39	1093 66
Van Buren,	3801 05	2707 39	1093 66
Washington,	3801 05	2707 39	1093 66
White,	3801 05	2707 39	1093 66
Yell,	3801 05	2707 39	1093 66
Total amount	201531 57	131407 98	70123 59

J. H. CREASE, Treas. of Ark.

Treasurer's Office, Little Rock, July 2, 1853.

PACIFIC RAILROAD CELEBRATION.

The 1st Division of the Pacific Railroad is done.

On the 19th day of July, 1853, about 700 invited guests were transported over the line into Franklin County, where immense tables were loaded with the good things of this world. In the midst of the feast speeches were made, congratulations interchanged, pleasant memories and brilliant hopes portrayed, and the company returned to St. Louis in the evening with safety and satisfaction.

The *Missouri Republican*, of the 21st July, contains an admirable history of the celebration. The cost of the road, and character of the country, will be published by us hereafter.

Iowa and North Missouri Railroad.

THE CHARITON CONVENTION of the people of the Des Moines Valley was held on the 20th June, 1853, pursuant to the resolutions of the Railroad Meeting at Centreville, Appanoose County, on the 4th of May.* As we anticipated they have reiterated earnest resolutions in favor of the Mississippi Valley Railroad, declaring it to be "one of the most magnificent enterprises of the age." We are confident that a lively correspondence will arise between the Committee of the Convention and the North Missouri R. R. Co., so that abundant information may be prepared by the first Monday of September next to give a wise direction and irresistable force to the ALBIA CONVENTION.

The actors and actions of the CHARITON CONVENTION were as follows:

From the "Democratic Union," Keosauqua, Iowa.

RAILROAD CONVENTION.—Pursuant to previous notice, a large meeting was held at Chariton, Lucas county, Iowa, June 20th, for the purpose of taking into consideration the propriety of extending the Northern Missouri Railroad from a point on the South line of the State on the most accessible route to Fort Des Moines.

On motion, Judge BATES, of Polk county, was called to the chair, and D. ANDERSON, appointed Secretary.

On motion, a committee of six were appointed by the chair to draft a series of resolutions expressive of the objects and intentions of the meeting, which committee consisted of Judge Riggs, of Appanoose, J. B. Teas, of Monroe, Dr. Yeoman, of Lucas, H. H. Trimble, of Davis, J. E. Neal, of Marion, and S. W. Summers, of Wapello.

During the absence of the committee, the meeting was ably addressed by Messrs. Bates, Dunlavy, May and Harris.

The committee presented the following preamble and resolutions which were unanimously adopted:

WHEREAS, The citizens of the State of Missouri have organized a company for the purpose of constructing a railroad to be called the North Missouri Railroad, from St. Louis, in said State, northwardly along the great divide, separating the waters of the Mississippi from the waters of the Missouri, to some point on the State line between Iowa and Missouri, thence to be continued northwardly through Iowa to St. Peters, in Minnesota; whereas, said company have obtained a charter for said road, and been

* See page 127, vol. 10.

favored with an extensive loan by the State towards the building of the said road, and whereas, the said company have commenced, as we are informed, the survey of said road, and do by their acts show that they have commenced the work in good earnest, and are determined that said road shall be built, Therefore,

Resolved, That we, as citizens of Iowa, living in a portion of the State through which said road must run, have remained idle, though not indifferent, spectators of the noble enterprise of the citizens of our sister State already too long.

Resolved, further, That we are vitally interested in the construction of said road, running as it will from the great commercial emporium of the West through the very heart of the richest portion of the young but growing State of Iowa, and forming a link of a contemplated road from the extreme South to the extreme North of the Union, it forms a part of one of the most magnificent enterprises of the age.

Resolved, further, That we are willing to do anything in our power to forward the interests of said proposed road, and that we believe the time of action has arrived.

Resolved, That a committee of seven be appointed to correspond with said company with reference to the progress and prospects of said road, and to collect information generally in regard to the same, to be laid before this convention at its next meeting in Albia.

Resolved, That when this convention adjourns it adjourns to meet at Albia on the first Monday in September, 1853.

J. B. TEAS, Chm. Com.

The following gentlemen were appointed the corresponding committee, contemplated in the foregoing resolutions, viz : C. Bates, D. Yeoman, A. Harris, H. H. Trimble, E. Anderson, J. E. Neel, and P. Bryant.

On motion, resolved that the proceedings of this convention be published in the Iowa Star, and the other papers in this State, and those in St. Louis be requested to publish the same.

On motion, adjourned to the first Monday in September next at Albia.

C. BATES, President.

D. ANDERSON, Secretary.

In addition to the foregoing, we find another evidence in Iowa of the popularity of the North Missouri Railroad.

On the 9th of July, 1853, a railroad meeting was held in Bloomfield, Davis County, and a resolution was passed proposing to raise $100,000 for the work.

We present their proceedings with the accompanying well-timed editorial from the *St. Louis Intelligencer*.

NORTH MISSOURI RAILROAD MEETING IN IOWA.

It will be seen by the following that the citizens of our sister State are not unmindful of the great interests they have at stake in the speedy completion of the North Missouri Railroad. The people of Davis county have, in their primary meeting, set a noble example for many of their neighbors, who will doubtless emulate their public spirited energy without delay. It cannot be apprehended that the voters of Davis will fail to ratify the resolution concerning a subscription of stock.

The spirit exhibited in the resolutions is the true one which should breathe along the whole line of the projected Great Valley Railroad. The WEST requires no less for its rightful development. When every locality whose *interest* is equally involved with that of Davis county, in this grand scheme of railroad connections, shall show an equal appreciation of the fact, we may consider the day very near when the Valley of the Mississippi shall occupy that distinguished position in the eyes of the world, as to commerce, wealth and intelligence, which Nature has with unsparing hand endeavored to secure for her.

Bloomfield, July 14, 1853.

MR. EDITOR: By giving the accompanying account of our meeting and resolutions an insertion in your paper, you will confer a great favor on the people of this part of Iowa. Your paper has, I believe, the largest circulation in this county of any published in St. Louis, and for this reason we are anxious for our proceedings to appear in the "Intelligencer:"

At a meeting of the citizens of Davis county, Iowa, held at the Court House, in Bloomfield, on the 9th day of July, to take into consideration the means to connect with the North Missouri Railroad, on motion, A. D. WILLIAMSON, Esq., was called to the Chair, and O. D. TISDALE was appointed Secretary.

The committee appointed at the previous meeting, to draft resolutions expressive of the sense of the citizens of Davis county, in relation to said road, reported the following which were unanimously adopted:

WHEREAS, We, the citizens of Davis county, owing to our geographical position, are, and ever have been laboring under great disadvantages in transporting our surplus products to market; and whereas, the citizens of Missouri have organized a company, and are now making vigorous efforts to construct a Railroad from St. Louis northward, along the great divide between the Mississippi and Missouri rivers; therefore,

Resolved, That we have been slumbering too long in reference to this road; and that we believe the time has come for action; we

now pledge ourselves to coöperate heartily with the friends of said road, in forwarding its interests.

2. *Resolved*, That said road constitutes a link of the great contemplated road from New Orleans to St. Paul, and that in locating said North Missouri Road, reference should be had to this fact—that Bloomfield lies in the direct route of such contemplated road.

3. *Resolved*, That Fort Desmoines is at least fifty miles out of the direct route of such contemplated road; and that the direct route passes through a district the richest and most fertile the State affords, and one which is much more densely peopled than any district through which a more western route could pass.

4. *Resolved*, That the nearer the route of said road approaches the Mississippi, while sufficiently remote to avoid competition with it, the more profitable will be the stock in said road, and the more will it enhance the trade of St. Louis.

5. *Resolved*, That nothing is wanting to our success in this matter but an effort on the part of the people of this county; and that we look upon the proposed road from St. Louis as a fixed fact, and the only sure adventure of the kind in which our citizens can be interested. Therefore, we further resolve, that the interests of the citizens of Davis county require an outlet to the markets of the world; and that we look upon the North Missouri Railroad as a work in which the entire population of Davis county, and southern Iowa, may unite; and that we hereby respectfully request our County Judge to submit the proposition to the people at the earliest practicable period, for a vote for or against a subscription by the county for $100,000 stock in said road.

6. *Resolved*, Thatt he county of Davis has under her soil inexhaustible wealth to attract the attention of a railroad company, and that the statistics of our State will show to the world that we have as good and productive an agricultural district as the world can afford; and that no part of the globe can, from its *own resources*, afford more business for a railroad.

7. *Resolved*, That a committee of three be appointed to correspond with the officers and friends of said road, to solicit such information touching their views and designs, as will enable us to take the required steps to secure their coöperation in bringing the said road through our immediate vicinity of country.

H. H. Trimble,
O. D. Tisdale,
W. H. Jones,
} Committee.

On motion, a committee of three, to wit: O. D. Tisdale, H. B. Horn, and S. G. McAchran, was appointed to correspond with similar committees on the proposed line of said road, for the purpose of fixing a time and place of meeting, of the friends of the road, to take measures for its early completion.

On motion, a committee of three was appointed, to wit: H. Dunlang, Dr. D. C. Greenleaf and S. S. Carpenter, to correspond with and invite citizens of Missouri and Iowa, to be present at the proposed meeting of the friends of the road.

On motion, the meeting adjourned.

A. D. WILLIAMSON, Chairman.

O. D. TISDALE, Secretary.

Hannibal and St. Joseph Railroad.

The survey of a route for the Hannibal and St. Joseph Railroad has placed the mineral resources of North Missouri before the people of the United States in a new light, whilst the fact that this line of road traverses a coal-field for the distance of seventy miles is calculated to make it one of the most important improvements in the Mississippi Basin. Coal may be regarded as a necessary element of modern civilization, and the imagination can scarcely grasp the extent to which its consumption is destined to be carried in this broad region. To give some idea of the growth of the coal trade east of the Alleghanies, where wood is much more abundant than in the West, we extract the following statistics from the Railroad Journal:

"In 1821	there	were	1,071	Tons	consumed in the U. S.
1831	"		178,000	"	" "
1841	"		888,000	"	" "
1851	"		4,383,730	"	" "

At the same ratio of increase for the next decade the consumption will be in 1861 seventeen millions of tons."

No apprehension need be entertained on the part of the Hannibal and St. Joseph Railroad Company, that there will be little or no demand for coal: it will not be many years after their road shall have been completed before it will be taxed to its utmost capacity to transport this one article. And traversing, as it does, one of the best agricultural districts of this great valley, it will not be long before a double track will be required to do the business of the line. We most cordially congratulate the company and the citizens of North Missouri in general, in view of the brilliant prospects before them.

We are conscious of the injustice which we do the Chief Engineer, J. M. Bucklin, Esq., by copying a part of his very able Report without publishing the whole document; but as that was not practicable without doing violence to the arrangement of our Journal, we trust some other occasion may arise which will enable us to do him more ample justice.

REPORT OF THE ENGINEER ON THE PRELIMINARY SURVEYS AND LOCATION OF THE HANNIBAL & ST. JOSEPH R. R.

The greatest obstacles to be surmounted on the route of the Hannibal and St. Joseph Railroad, were supposed to exist in passing the "Elk Knobs" in Macon County, between "Yellow Creek" and Chariton River, a distance of twenty miles. A favorable location was, however, obtained through this locality; the peculiar features of which consist of short conical ridges, formed by irregular ravines, several of which head in a point common to each, and after running in opposite directions, curve abruptly and unite; thus forming what is generally called the "Knobs," some of which are so regular in contour, that they resemble more the works of Art than of Nature.

The summit of the "Knobs" seems to have been a common level, in some instances two hundred feet above the general surface. A tendency to this conformation is first observed in Township 60, and extends down into Township 56; but they are seen in all their prominent characteristics in Townships 58 and 59. They are drained by the Muscle Fork. The forces operating in producing these distinctive features, must have acted differently upon the surface on either side of this particular locality; for, while the "Knobs" exhibit the effect of the action of subsiding waters, the former indicate that of a violent current, producing extensive, well-defined valleys and ravines.—Indeed, the whole surface from the "Elk Knobs" west to "Grand River" seems to have undergone the process of what is termed by Geologists denudation, by which all the superior and a portion of the inferior strata have been carried off. The effect of this denudation has been to expose and render available an immense bed of bituminous coal, with which a greater portion of the country is underlaid; it extends a distance of seventy miles, varying in thickness from one to nine feet; the maximum of which, occurs in the vicinity of Bloomington, Macon County. It is discovered at frequent intervals. On Grand River at a depression of ninety feet below the Missouri River, at St. Joseph; in the Valley of "Locust Creek," at a depression of seventy feet; in the "Muscle Fork" at a depression of 30 feet, and on the middle Fork of the Chariton at an elevation of five feet above the Missouri River, at the point before mentioned, showing a uniform rise towards the east of about one foot per mile.* It probably terminates in the dividing ridge

* The true dip is probably S. W.

between the Missouri and Mississippi, a few miles east of Bloomington; between this point and the Mississippi an accurate geological examination will be required to determine the precise condition of this coal measure, as there may have occurred either a dip in the opposite direction, or a "fault" in its position. The coal formation at Grand River is undoubtedly identical with that at Bloomington and the intermediate points, the overlaying strata being the same—lamenated sandstone of fine grit. This stratum of coal disappears at Grand River, in consequence of its "dip" westward and the great increase of the elevation of the general surface; it is therefore covered to a depth that prevents its appearance on the line westward. At an elevation of fifty feet above this formation, on the west side of Grand River, there are indications of coal. It was supposed that it might prove to be the margin of another Coal Basin, with a "dip" eastward, increasing in thickness westward. This is probably the case; but the increase of thickness is not sufficient to render it of any practical value. It was traced west for forty miles. There can be no doubt of the presence of Galena or Lead ore in the vicinity of Grand River; but to what extent is unknown. Hydraulic limestone occurs on the route. Crude Copperas (Sulphate of Iron,) is found on one of the tributaries of "Muscle Fork. Marl, of a superior quality, also exists in abundance in the Valley of Chariton.

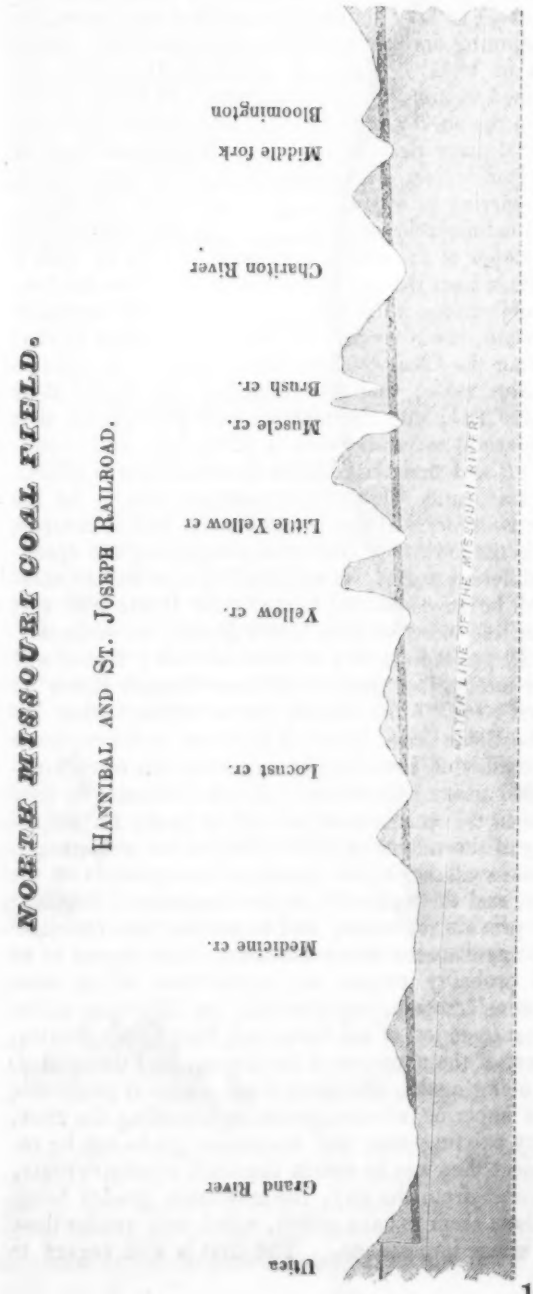
For the purpose of comparison, I have divided the whole route into four Divisions—the first commencing at St. Joseph, and extending twenty-five miles east; the second commencing at the termination of the first, and extending to Medicine Creek, a distance of 59.1 miles; the third commencing at Medicine Creek, and extending to Palmyra, a distance of 106.8 miles; and the fourth embracing the line between Palmyra and Hannibal, a distance of 11.4 miles: total distance, 202.4 miles. The tables of comparison of the different routes on these divisions, accompanying this report, are marked A, B, C, and D. They exhibit the comparative operative value in detail, of all the practital routes, founded upon the well-known approximate power of locomotive engines on levels and on grades, the cost of repairs, and the interest on the cost of construction. On all the routes an addition of 15 per cent. has been added to the estimated cost, to cover the prospective rise in the value of labor and of iron. With this addition, and $400,000 for rolling stock, depots, &c., the total estimated cost is $4,066,624, or $20,092 per mile. (See Table E.) This estimate is calculated for the passage of four trains per day, two each way. On the first and second Divisions the calculations are based upon equal transportation east and west; on the third and fourth Divisions at double tonnage passing eastward. The maximum rate of graduation on the whole route is 50 feet per mile. The minimum radius of curvature 1,910 feet.

First Division.—By referring to table A, before alluded to, with reference to the First Division, it will be seen that the Northern Route will cost $20,306 per annum more than the Southern Route to do the same amount of business; and that the Middle Route exceeds the Southern $6,116 per annum, at the estimated cost. At contract cost the difference is less, as all the routes are calculated at the same rate per mile; but notwithstanding, the Southern Route, on account of its superior working value, is $4,100 per annum less than the Northern, and $2,600 per annum less than the Middle Route. Taking, therefore, into consideration, grades, distance, curvature, and cost, the only elements of calculation that can enter into an abstract comparison of the operative value of routes, the Southern Route of this division is demonstrably the best.

Second Division.—This division includes that part of the line between Castile and Medicine Creeks, embracing the Northern Route, by Gallatin and Springhill—the "Utica Divide" Route, passing one mile south of Utica and Chillicothe—and the "Shoal Creek" Route, passing down the Valley of "Shoal Creek," two miles north of Kingston, and joining the two former at Medicine Creek. The comparative value of these routes is shown in table B; by which it appears that the Northern Route, passing the same tonnage, will cost $40,470 per annum more than the "Utica Divide" Route at the estimated cost of construction, and $31,128 per annum more at contract cost; that the "Shoal Creek" Route will exceed the "Utica Divide" Route by $1,833 per annum at the estimated cost, and $2,736 per annum at contract cost. The "Utica Divide" Route is therefore the best route.

Third Division.—The Third Division, extending from Medicine Creek to Palmyra, includes the "Northern Route," passing through Bloomington and Shelbyville, and the "Southern Route," passing three miles south of Shelbyville. By table C it will be perceived that the cost of the "Northern Route," at estimated value, is $18,027 per annum greater than the cost of the "Southern Route," and $3,982 per annum greater at contract cost of construction. The Southern route is therefore the best route.

Fourth Division.—The Fourth Division extends from Palmyra to Hannibal, embracing the "Bear Creek" Route, the "Clear Creek" Route, and the "Minnow Branch" Route. With regard to the surveys of this division, the Board is aware that the two former routes were surveyed and reported upon by me at a former meeting of the Board, and that the latter route was partially examined and abandoned. Being under the impression that all the examinations necessary to enable the Board to decide upon the selection of a route for the eastern terminus had been made—and that a speedy completion of the approximate location was necessary, and, indeed, required by an order of the Board—Mr. W. C.



Section 70 *miles long.*

See Report of Chief Engineer, Hannibal and St. Joseph Rail Road, Page 272.

Bayly was dispatched, (immediately after the adjournment of the Board in August last,) to take charge of a corps of engineers, for the purpose of continuing the preliminary surveys previously terminated at Palmyra in 1851. Upon his arrival at Hannibal, instructions were issued to him "by the Directors," as stated in his report, resulting in the survey of the whole, and definite location of a part, of the "Minnow Branch" Route. Nearly one-half of this route is traced on curves, a series [illegible] of short radii, and in reversed order, occurring in a gra[illegible] feet above the maximum, are wholly inadmissable on the road. In the calculations of quantities, the slopes of the cuts [illegible] assumed at 1 to 1, with a general base of fifteen feet; the estimate cost is therefore too low. Aside from these objections, which will require a greatly increased expenditure to obviate, it will be seen by reference to table D, that it is inferior to either the Clear or Bear Creek Route. It will also be seen by the same table, that the estimated cost of the Bear Creek Route is $218,141, and the contract cost $340,400; that the Clear Creek Route at estimated cost is $246,195, and at contract cost $264,500; and that the Minnow Branch Route is $328,-897 at estimated cost, and $303,600 at contract cost. At the estimated cost the Bear Creek Route is the lowest, and at contract cost Clear Creek is the lowest. But upon comparing the operative value of the different routes, as exhibited in the before mentioned table, it will be seen that the Clear Creek Route will cost $6,617 per annum less than the Bear Creek Route, at estimated cost, and $13,923 per annum less at contract cost; that it will cost $16,302 per annum less than the Minnow Branch Route at estimated cost, and $14,785 per annum less at contract cost. By this comparison the Clear Creek Route is the best, in consequence of the greater economy of the working expenses and repairs accruing from the shortness of the route. These advantages were appreciated by me in the conclusions arrived at in my former report on the survey of these lines in 1851. But, on the other hand, there was the great available space found at the terminus of the Bear Creek Route, and the want of it at the terminus of the Clear Creek Route; to provide for which, and to procure the exclusive right of way for some distance above the town, which seems to be necessary, would probably require an expenditure of at least $100,000. This consideration, together with the difference of the probable cost of construction of the Clear and Bear Creek Routes, inclined me in favor of the adoption of the latter. As I then stated, "everything else being equal, the Bear Creek Route is preferable on account of its superior advantages in approaching the river, and the probability existing that the maximum grade can be reduced." The object then was to obtain the least expensive route, having the best outlet from the city, the maximum grades being equal. But questions seem to have arisen, which may render these considerations of minor importance. The first is with regard to

the conditions of the contract; the second is the fact that other works in the immediate vicinity have been encouraged by the Legislature, which will probably be constructed, and create competition in the carrying trade. It therefore becomes necessary to take into calculation other elements affecting the ultimate value of the Road, that the transportation may not be unnecessarily delayed or taxed. How far the results deduced from these computations are to govern the precise location of the eastern terminus, it is not my province to decide. They have, however, an important bearing upon the practical value of the whole Road.

St. Louis & Iron Mountain Railroad.

MEMORIAL

To the City Council of the City of St. Louis.

At a meeting of the Board of Directors of the St. Louis and Iron Mountain Railroad Company, held on the 14th inst., the undersigned were appointed a Committee to solicit from the city of St. Louis a subscription of five thousand shares to the stock of said company. The Directors believing that with this sum added to the subscriptions already obtained, they could put the whole road under contract, and provide for its completion at an early day.

The Engineers in the employ of the Company, have lately completed the preliminary surveys for the road, in which thorough examinations were made of all the routes claimed to be practicable; and the one selected is a great improvement upon the line first reported upon—being two 64-100 miles shorter, with 5 feet to the mile less grade coming north, with less curvature, and a saving of seven bridges; which, in view of the character and quantity of freight to be transported over this road, becomes an important consideration.

There are now two parties engaged in a detailed survey necessary to an accurate location of the route, and to enable correct estimates for construction to be made, and if sufficient means can be obtained to justify it, the Company expect to put the road under contract within a few weeks.

The speedy completion of this road is important to St. Louis —indeed, to the whole State of Missouri.—Five-sixths of the iron sold in this market is brought here from Pittsburgh, Wheeling, and other distant points; and more than one million five hundred thousand dollars is sent annually from St. Louis to pay for iron

and nails sold here, besides the cost of pig metal used by our foundries. By constructing this road to the Iron Mountain and Pilot Knob, Rolling mills and Nail factories would soon be built up in our city, and the foreign article driven out by the manufacture of better iron at home.

These manufactures would add to our wealth, and greatly increase our population. Look at Pittsburgh. More than fifty thousand of the population of that city and her suburbs are supported from the manufacture of iron, and the annual product amounts to millions. In Cincinnati about five thousand men are employed in the manufacture of iron, and more than twenty thousand of her population are supported from that source alone.

We have thus briefly alluded to our sister cities in order to practically illustrate what St. Louis may justly expect when the rich ores of Missouri are brought within her reach.

With a geographical location unsurpassed by any inland city in the world—centrally located in the great Valley of the Mississippi —possessing many important natural channels of communication with every part of this valley—with inexhaustible masses of the richest iron ore in her vicinity, St. Louis has but to arouse herself with energy to become the most important iron mart of America. She can not only put a stop to the large importation of iron, nails and castings, which is now necessary to supply our wants, but can successfully compete with our sister cities in supplying the markets of the South and West.

Within the next four months we shall be in the daily receipt of coal from the Illinois Bluffs by three different railroads. And in eighteen months we can have the Cannel Coal from the Osage, brought here by the Pacific Railroad.

With these assurances of an abundance of fuel, we only need the iron to give a new impulse to the manufacturing interests of our city.

By the construction of the Road to the Iron Mountain and Pilot Knob, we can obtain the rich ores of that region at a price that will defy competition, and in quantities that almost defy computation.

From an estimate made by one of the Engineers engaged in surveying the road, it appears that there is ore enough in the Iron Mountain above the level of its base to make one hundred and five million tons of iron. And the Pilot Knob and Shepard's Mountain, and the adjacent banks, would probably furnish a still greater quantity. So that within eighty miles of St. Louis, and within a space of seven miles, we have iron enough to supply the world for centuries to come, without descending below the base of those mountains.

The quality of these ores is well known. For the manufacture

of steel and for all maleable purposes, they have no superior. It is just what we need at this time for our railroads.

But before this iron can be brought into extensive use—before iron manufactures can be built up in our city, increasing our industrial population, adding to our wealth, and securing to us our "boasted destiny" as a commercial metropolis, we must have the railroad to transport the ore to our city. In this opinion every one concurs; and every day's delay in the construction of this road, delays the commencement of a new era in the prosperity of St. Louis.

Build this road, and rolling mills, nail factories, and foundries would soon spring up and find constant employment in supplying our home market. These rolling mills would not be confined to the making of assorted bar iron, boiler plate, &c., but another and important branch of manufacture would be added, to wit: the making of railroad iron.

It will require for the completion of the Pacific Railroad to Kansas, and the south-west branch, sixty thousand tons of rails; for the North Missouri road thirty thousand tons, and for the Iron Mountain road ten thousand tons—making an aggregate of one hundred thousand tons, and costing at present prices, over *seven millions of dollars.*

We ask, shall this money be sent to England to buy an inferior article, or shall it be retained to enrich St. Louis and develop the resources of our own State? But the manufacture of railroad iron will not stop with the completion of the above named roads. The road to the Pacific must be built. Allowing the distance to be two thousand miles, and that it will take one hundred tons of iron per mile, it will require two hundred thousand tons for that road alone—costing at present rates, over *fourteen millions of dollars;* and the making of this iron would give constant employment to three rolling mills for seven years.

The manufacture of railroad iron at this point in sufficient quantities, would be one of the strongest arguments in support of our claims to the starting point in the road to California, that we could offer. Let it be announced that St. Louis is prepared to furnish the rails for this road as fast as the road is graded—rails of superior quality, made from the "famed" Missouri iron, and it will give us advantages that cannot be overcome by the *influence of conventions.*

Other roads are contemplated all around us, including the continuation of the Iron Mountain Road to Little Rock and Fulton, and thence to New Orleans. And a few years will increase the demand for iron to an extent beyond our most sanguine anticipations St. Louis, if true to herself, will reap the benefits.

There are parties now ready and anxious to commence the manufacture of railroad iron in this city, but deem the completion of

the road necessary to ensure success. Others are more confident, and propose commencing to build at once if the road is to be constructed. And we have good reason to believe that if we put our road under contract this fall, we shall be able to contract for all the rails to be manufactured in St. Louis, and of Missouri iron.

The road and its equipments will cost at the present high prices, about three million of dollars. We have about $800,000 of the stock subscribed. If the city of St. Louis takes a half million dollars of stock, it will give us thirteen hundred thousand dollars. And we expect to obtain from the city of Carondelet, and individuals, one hundred thousand more. With this amount we shall be able to dispose of stock and the bonds of the Company in other markets, to an amount sufficient to complete the road.

The estimate of the engineer, makes the road when built, pay over seven per cent., and those estimates of buiness were only intended to show a seven per cent. stock, and are too low both as to freight and passengers, only allowing 60,000 tons of metal and ore, and 15,000 tons of granite and marble per annum—and other articles in a like ratio.

The granite near the Iron Mountain is of superior quality and beauty; and it is believed that the opening of the road will bring it into extensive use in our city, not only for building purposes but for paving our streets. The expense for the latter will only be that of quarrying and transportation.

This road when built will bring to our market not only the pig metal and blooms made at the points named, but will bring all the ore needed for manufacturing here as well as for shipment to other points—and this last will become an important item of trade—as it has been ascertained that from the quality and richness of the ore, it will bear shipmeut to different points on the Ohio when costing ten dollars per ton at Ste. Genevieve. By railroad it can be furnished at our wharf at three dollars per ton.

The road will pass through the counties of Jefferson, Washington, St. Francis, and into Madison; and will accomodate the lead mines of those counties, and give a new impulse to business. It will also draw the trade of the counties of Dent, Shannon, Oregon, Ripley, Wayne and Dunklin.

It will also draw the trade of northern Arkansas, that now comes to us by way of Cape Girardeau, which will meet us at the Mountain until our road is extended further south. That the stock will be good paying stock, we do not entertain a doubt. But if it were otherwise, if the city subscription should prove a total loss, it would still be a judicious investment if the road be built; as the city would be amply compensated for her loss in the establishment of manufactures, in the increase of her population, and in the increased wealth drawn from this inexaustible source to be subject to city taxation, and thereby greatly increase her revenue. At this time strong efforts are being made to draw off our produce

trade, and with it to draw the dry goods trade from large sections of country heretofore considered tributary to St. Louis. And these efforts may succeed unless we build up manufactories ; and by furnishing the staple articles that are indispensable, over come these efforts, and make our rivals tributary to St. Louis.

We have endeavored, thus hastily, to sketch a few reasons why the city should subscribe, and, by her aid, ensure the early completion of the road.

We do not ask this subscription as a favor to the Company, but as securing an important benefit to St. Louis ; one in which the capitalist, the merchant, the mechanic, and the laborer are all interested. If our unparalleled growth, as a city, is to continue, we must have manufactories. If we would defy the competition of rival cities, we must supply the Mississippi Valley with Iron, in its various forms, and that without delay. If we would draw the millions to St. Louis, that will be otherwise sent to England to purchase Railroad Iron, we must prepare to make Railroad Iron here.

In Europe, "the Iron Mountain of America" is considered one of the wonders of the world, and the quality and purity of the ore considered almost fabulous; while here, it has, *so far*, been treated with neglect. While we have such quantities of ore within eighty miles of our city, so pure that it can be made directly into rails, we send to England to buy an inferior article, to be paid for by the shipment of our gold, or the issue of State bonds.

By the prompt action and aid of the city we can soon reverse this order of things, and, in a few years, make St. Louis the Birmingham of America, and add to her attractions as a great commercial centre.

All of which is respectfully submitted:

WM. M. MCPHERSON,
WM. H. BELCHER,
THOMAS S. O'SULLIVAN, } Committee.

Kentucky and Missouri Railroad Connection.

The following letter explains itself:

St. Louis, 1st July, 1853.

Gentlemen.—Your letter, inviting me to be with you at a *Mass Railroad Convention* to be held at Hickman, Ky., on the 4th of July, was duly received.

Before and since the reception of your favor I have thought and talked much of your enterprise.

Feeling a lively interest in the prosperity of South East Missouri I have been, for several months past, collecting information

by which a system of internal improvements might be established, to redeem and develop that neglected though rich quarter of our State. The more this subject is investigated, the more interesting it becomes. If a spirit of enterprise like that which your citizens are now manifesting were aroused and sustained throughout South East Missouri, its 2,000,000 acres of Swamp Lands would soon be converted into gardens as inexhaustible in fertility, beautiful in prospect, and as abundant in productions as those of Holland; and its central portion, besides abounding profusely with various kinds of minerals, would be freely acknowledged to embrace, in the words of one of our Statesmen, "100 miles of the richest iron deposits on the globe."

To display fully the information obtained of this undeveloped mineral and swamp region, and the system of internal improvements deemed most advisable for its welfare, would lead me beyond the proper limits of this letter.

I will take the liberty however to state that I have advocated the construction of a Railroad from St. Louis *via* the Iron Mountain to Chalk Bluff, as a link in the Mississippi Valley Railroad, which is projected to unite the city of New Orleans with the Falls of St. Anthony. At the same time I have advocated the construction of a branch from Chalk Bluff to New Madrid.

The reasons for advocating this branch of the system of Internal Improvements for South East Missouri are founded, and, as I am convinced, *firmly founded*, on the information above alluded to.

New Madrid is only about 17 miles, on an air line, from Hickman. As a portion of the system for the reclamation of the swamp lands, a levee might be built on or near an air line from New Madrid to a point on the Mississippi river opposite Hickman. This levee would be a bed already prepared for the rails of the road, and by this short and easy extension of the system heretofore earnestly advocated by me, the connection between Hickman and St. Louis *via* the Iron Mountain would be established. This little link of 17 miles would also connect Hickman with the Cairo and Fulton Railroad, passing by the heart and throughout the body of the State of Arkansas, which road has been surveyed through Arkansas by the Government of the United States, and for the construction of which a grant of public land has been made.

But although Hickman would thus become interested in the Arkansas portion of the Mississippi Valley Railroad, that portion of

it between Chalk Bluff and the Falls of the St. Anthony would be more directly beneficial to Hickman by virtue of its connection with the Mobile, the Savannah and the Charleston roads.

The Legislature of Minnesota, last winter, chartered the Louisiana and Minnesota Railroad Co. In Iowa conventions have lately been held in favor of the extension of the North Missouri Railroad.

The North Missouri Railroad Co. have obtained about $1,000,000 subscription to their stock, and $2,000,000 State credit, the cost of building it being estimated unsurveyed at $4,500,000, its length from St. Louis to Iowa 250 miles. The Iron Mountain Railroad Co. have obtained about $800,000 subscription to their stock, and $750,000 State credit, the cost of building it from St. Louis to the Iron Mountain on surveys made by the Co., and partly located, being estimated at about $30,000 per mile, and its length 80 miles. Total cost about $2,400,000. The balance to Chalk Bluff unsurveyed except on Capt. Barney's route, being estimated at $2,000,000 total cost, and length 80 miles. The Missouri portion of the Mississippi Valley Railroad is thus estimated at a cost of $8,900,000, and its length 410 miles. Means provided $4,550,000.

These statistics are offered instead of an argument in favor of the Mississippi Valley Railroad, as they condense light on the subject, and show the faith of the people in the cause.

The connection between this road and the Mobile and Ohio road at Hickman is one of great importance to the interest of both, and when the connection is established between Griffin, Ga., and Decatur, Ala., Hickman will we only a little more than 100 miles further from Savannah than from New Orleans by railroad, and Charleston only an hour or two further than Savannah. Therefore not only Mobile but Savannah and Charleston too will become interested through Hickman with this heart of the Mississippi Valley.

I regret that engagements here will prevent me from being with you on the 4th; but hope that the movements you are making to connect the system of Railroads in South Eastern United States with the Mississippi Valley Railroad, will be perseveringly continued, until your project is freely acknowledged to be a fixed fact, and the prosperity of Hickman is firmly established.

Very respectfully,

HENRY COBB.

Messrs. E. B. FUQUA and others, Committee of Invitation.

STATISTICAL DEPARTMENT.

Statistical view of the commerce of the United States, exhibiting the value of exports to and imports from each foreign country, and the tonnage of American and foreign vessels arriving from and departing to each foreign country, during the year ending June 30, 1852.

COUNTRIES.	COMMERCE.				NAVIGATION.			
	VALUE OF EXPORTS.			Value of imports.	AMERICAN TONNAGE.		FOREIGN TONNAGE.	
	Domestic produce.	Foreign produce.	Total.		Entered the United States.	Cleared from the U. States.	Entered the United States.	Cleared from the U. States.
Russia	$1,061,748	$138,732	$1,200,489	$1,581,620	12,009	10,006	1,477	3,045
Prussia	93,233	153	93,386	21,263	383	295	.....	1,558
Sweden and Norway.	732,846	25,322	758,168	775,448	3,511	3,640	16,854	6,547
Swedish West Indies	90,802	1,993	92,795	4,284	721	2,287	120	125
Denmark	93,009	22,643	115,652	16,611	335	374	748	3,916
Danish West Indies..	810,439	120,697	931,136	191,745	14,292	20,408	9,062	6,581
Hanse Towns	6,195,927	681,030	6,876,957	8,171,411	27,058	27,521	140,478	87,500
Oldenburg	.....	.....	.....	.....	.....	.....	.....	378
Holland	2,292,848	204,681	2,497,529	1,635,561	14,927	18,759	15,556	22,923
Dutch East Indies ...	142,997	181,185	324,182	1,015,994	7,551	3,689	1,100	14,022
Dutch West Indies...	299,679	17,766	317,445	552,561	15,119	4,977	10,693	715
Dutch Guiana	83,952	7,282	91,234	86,738	6,698	6,262	2,084	944
Belgium	3,202,767	1,001,003	4,203,770	2,054,043	15,982	34,705	15,538	5,940
England	107,788,657	4,536,185	112,324,842	88,119,859	749,818	672,488	413,103	396,017
Scotland	2,441,148	230,635	2,671,783	2,355,947	21,695	19,856	71,650	22,288

Ireland	573,250	100	573,350	152,533	5,458	4,116	69,411	9,460
Gibraltar	229,302	49,157	278,459	105,853	642	7,578	1,557	1,802
Malta	96,347	16,975	113,322	114,364	916	2,442	418	453
Hanover	5,906	.....	5,906	.....	.....	.....	447	.....
Mauritius	11,520	.....	11,520	.....	.....	.....	.....	786
British East Indies	565,138	39,360	604,498	4,225,041	42,910	52,763	2,964	7,730
Cape of Good Hope.	224,236	1,718	225,954	190,798	1,863	4,343	773	612
British Honduras	292,813	69,259	362,072	261,646	4,775	5,020	2,576	2,440
British Guiana	742,286	18,381	760,667	43,943	3,304	12,123	1,304	3,712
British West Indies	3,512,133	79,956	3,592,089	1,030,537	70,085	99,470	40,125	38,097
Brit. Amer. Colonies	2,650,134	1,141,822	3,791,956	1,520,330	63,887	122,809	337,050	544,518
Canada	4,004,963	2,712,097	6,717,060	4,589,969	774,878	765,945	591,569	589,345
Other Brit. Colonies	.....	3,966	3,966	.....	.....	.....	.....	.....
Australia	196,554	11,713	208,267	.....	4,367	9,318	6,791	17,016
Falkland Islands	7,363	1,177	8,540	.....	.....	208	.....	.....
France on the Atlantic	20,793,878	1,721,441	22,515,319	24,195,914	184,041	187,965	35,370	11,085
France o. t. Metiter.	1,396,192	79,134	1,475,326	1,694,352	9,201	26,798	11,398	6,517
French West Indies	429,846	25,598	455,444	46,287	8,036	16,955	3,043	2,119
French Guiana	64,747	1,278	66,025	32,422	1,526	1,783	.....	.....
Miquelon&FrenchFis	.....	.....	.....	524	165	497	.....	1,587
Bourbon	.....	.....	.....	.....	.....	.....	.....	588
FrenchPoss. inAfrica	.....	.....	.....	.....	.....	.....	.....	93
Spain on the Atlantic	498,314	28,208	526,522	342,096	12,445	10,968	7,661	8,406
do. Mediterranean	2,718,504	114,237	2,832,741	1,443,975	12,113	6,174	13,506	37,631
Tencriffe&oth.Canar.	16,471	45	16,516	51,615	837	793	548	1,133
Manilla & Philippine	211,791	9,927	221,718	1,522,646	12,513	11,039	687	6,262

Continued.

COUNTRIES.	COMMERCE.				NAVIGATION.			
	VALUE OF EXPORTS.			Value of imports	AMERICAN TONNAGE.		FOREIGN TONNAGE.	
	Domestic produce.	Foreign produce.	Total.		Entered the United States.	Cleared from the U. States.	Entered the United States.	Cleared from the U. States.
Cuba	5,803,196	714,355	6,517,551	17,861,728	441,418	370,306	48,537	22,780
Other Span. W. Ind.	1,015,563	39,543	1,055,105	3,001,225	58,885	35,010	12,061	5,544
Portugal	234,064	4,129	238,193	266,864	1,918	6,307	4,705	6,333
Madeira	87,932	7,480	95,412	90,003	1,021	4,171	166	596
Fayal & other Azores	17,766	1,386	19,152	29,346	2,816	1,447	1,079	686
Cape de Verde Islands	54,425	9,651	64,076	18,129	588	1,623	237	1,152
Italy	1,573,852	205,342	1,779,194	1,234,905	.....	.....	.....	.....
Sicily	55,649	10,890	66,539	606,541	22,990	6,609	12,780	3,427
Sardinia	769,209	42,286	811,495	74,901	821	13,443	6,136	6,669
Tuscany	17,697	.....	17,697	210,589	11,098	1,302	4,159	235
Ionian Islands	.....	.....	.....	.....	416	.....	208	.....
Greece	.....	.....	.....	23,591	.....	.....	502	.....
Trieste & Austr. ports	2,403,530	329,889	2,733,419	308,749	1,502	14,024	1,658	13,400
Turkey	265,825	50,371	316,196	556,100	6,857	3,909	654	322
Hayti	1,479,326	239,577	1,718,903	1,870,672	36,871	32,365	6,821	7,320
Mexico	1,406,372	878,557	2,284,929	1,649,206	27,046	29,719	12,780	17,974
Central America	386,136	87,382	473,518	368,355	51,139	54,586	1,357	5,888
New Grenada	1,298,236	217,558	1,515,794	750,527	191,401	183,375	4,633	5,158
Venezuela	726,024	67,389	793,413	2,021,864	16,361	11,244	3,311	3,109
Bolivia	210,705	.....	210,705	.....	.....	646	.....	.....

Brazil	2,782,179	238,863	3,021,042	12,230,289	83,428	59,454	23,156	5,718
Cisplatine Republic	181,156	11,917	193,073	49,707	790	2,906	1,718	3,537
Argentine Republic	518,007	281,110	799,117	2,091,097	13,453	13,711	4,872	4,381
Chili	2,043,836	295,297	2,339,133	2,072,160	23,165	21,386	25,386	23,402
Peru	333,794	22,048	355,842	694,892	29,014	5,179	18,075	11,331
China	2,480,066	183,111	2,663,177	10,593,950	52,976	67,264	26,009	21,507
Liberia	.....	.....	.....	.....	.....	531	.....	.....
Patagonia	.....	.....	.....	.....	514	245	1,958	630
West Indies generally	72,208	.....	72,208	.....	.....	.....	.....	.....
Asia generally	14,049	.....	14,049	131,583	.....	.....	.....	.....
S. America generally	43,291	.....	43,291	113,086	.....	742	.....	.....
Africa generally	1,211,360	34,781	1,246,141	1,057,657	11,381	13,121	1,318	647
South Seas	311,791	21,615	333,406	4,462	5,237	5,281	1,219	326
Equador	.....	.....	.....	70,585	585	.....	.....	760
Greenland	.....	.....	.....	.....	677	2,465	.....	.....
Atlantic Ocean	.....	.....	.....	176	3,807	7,569	.....	.....
Pacific Ocean	.....	.....	.....	.....	20,178	60,680	101	3,773
Indian Ocean	.....	.....	.....	.....	1,194	5,583	.....	306
Sandwich Islands	.....	.....	.....	5,988	12,814	18,624	5,047	6,673
Northwest Coast	.....	.....	.....	.....	.....	1,152	45	.....
Uncertain places	.....	.....	.....	.....	.....	237	1,009	.....
San Francisco, Cal.	.....	.....	.....	4,648,587	.....	.....	.....	.....
Total	192,368,984	17,289,382	209,658,366	212,945,442	3,235,522	3,230,590	2,057,358	2,047,575

TREASURY DEPARTMENT, *Register's Office*, February, 26, 1853.

N. SARGENT, Register.

Statement of the commerce of each State and Territory,

STATES.	VALUE OF EX			
	DOMESTIC PRODUCE.			FOR
	In American vessels.	In foreign vessels.	Total.	In American vessels.
Maine	$1597204	$71070	$1668274	$43902
New Hampshire	65233	1971	67204	.....
Vermont	216088	.....	216088	172025
Massachusetts	9022796	5121205	14144001	1527646
Rhode Island	167549	6566	174115	5039
Connecticut	504679	1225	505904	270
New York	50723029	23319552	74042581	9320678
New Jersey	.....	1438	1438	.....
Pennsylvania	3971930	1550519	5522449	260930
Delaware	.....	.....	.....	.....
Maryland	4391692	2122949	6514641	120129
District of Columbia	79005	.....	79005	.....
Virginia	1618093	1103614	2721707	2500
North Carolina	406367	165909	572276	4123
South Carolina	6969817	4700204	11670021	.....
Georgia	1825121	3173894	4999015	75
Florida	1480135	1031841	2511976	.....
Alabama	10390377	6993204	17383581	.....
Louisiana	33469188	15338981	48808169	205936
Mississippi	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....
Missouri	.....	.....	.....	.....
Ohio	145807	207707	353514	.....
Kentucky	.....	.....	.....	.....
Michigan	100436	31930	132366	4338
Illinois	44235	7090	51325	.....
Texas	151766	77568	229334	468799
San Francisco, California	.....	.....	.....	.....
Oregon	.....	.....	.....	.....
Minnesota	.....	.....	.....	.....
Total	127340547	65028437	192368984	12136390

from July 1, 1851, to June 30, 1852.

PORTS.			VALUE OF IMPORTS.		
EIGN PRODUCE.					
In foreign vessels.	Total.	Total American and foreign vessels.	In American vessels.	In foreign vessels.	Total.
$5642	$49544	$1717818	$947926	$147051	$1094977
2254	2254	69458	68661	14658	83319
....	172025	388113	192593	.....	192593
874852	2402498	16546499	22306206	11198583	33504789
21	5060	179175	191062	10618	201680
....	270	506174	376278	18397	394675
4121197	13441875	87484456	101476789	30852517	132329306
....	....	1438	.....	2491	2491
45192	306122	5828571	9098424	5687493	14785917
....	....	....	....	.....	....
33091	153220	6667861	5620114	1099872	6719986
....	....	79005	54142	.....	54142
450	2950	2724657	362768	373090	735858
....	4123	576399	167547	132941	300488
....	....	11670021	1742492	433122	2175614
....	75	4999090	264789	210136	474925
....	....	2511976	28757	1956	30713
2123	2123	17385704	233564	354818	588382
44780	250716	49058885	9732977	2324747	12057724
.. ..	....	....	....	....	....
....	....	....	256504	.....	256504
....	....	....	914826	....	914826
....	....	353514	775190	157026	932216
....	....	....	185559	....	185559
8448	12786	145152	191976	4264	196240
....	....	51325	3995	837	4832
14942	483741	713075	65328	12564	77892
....	....	....	....	....	4648587
....	....	....	....	... .	....
....	....	....	.....	1207	1207
..					
5152992	17289382	209658366	155258467	53038388	212945442

Statement exhibiting the number of American and foreign vessels, with their tonnage and crews, which entered into the United States from foreign countries during the year ending June 30, 1852.

FROM	ENTERED.											
	AMERICAN VESSELS.				FOREIGN VESSELS.				TOTAL.			
	Number.	Tons.	Crews.		Number	Tons.	Crews.		Number	Tons.	Crews.	
			Men.	Boys.			Men.	Boys.			Men.	Boys.
Russia	32	1[illegible],009	409	6	4	1,477	60	.....	36	13,486	469	6
Prussia	2	383		1	.....	.....	.....	.....	2	383	15	1
Sweden and Norway	9	3,541	1[illegible]	.....	57	16,854	614	....	66	20,365	729	.....
Swedish West Indies	5	721	34	.....	1	120	5	.....	6	84	39	.....
Denmark	1	335	13	.....	3	[illegible]4	27	.....	4	1,083	40	.....
Danish West Indies	87	14,929	654	2	[illegible]8	9,062	333	5	115	23,3[illegible]4	987	7
Hanse Towns	28	[illegible]7,658	834	.....	347	140,478	5,025	8	375	167,5[illegible]6	5,859	8
Holland	29	14,927	471	.....	49	15,556	477	1	78	30,483	948	1
Dutch East Indies	18	7,[illegible]51	286	2	4	1,1[illegible]0	15	.....	22	8,651	301	2
Dutch West Indies	[illegible]0	15,119	[illegible]0	2	74	10,6[illegible]	4[illegible]	3	144	25,812	1,135	5
Dutch Guiana	33	6,698	291	3	11	2,081	84	.....	44	[illegible],782	375	3
Belgium	30	15,982	49	.....	43	15,538	[illegible]4	.....	73	31,[illegible]20	1,0[illegible]4	.....
England	815	749,818	21,[illegible]10	55	633	413,103	14,4[illegible]2	82	1,[illegible]48	1,162,921	3[illegible],662	137
Scotland	41	21,695	640	2	127	71,650	2,351	14	168	93,345	2,991	16
Ireland	11	5,458	176	.....	166	69,411	2,623	2	177	74,869	2,799	2
Gibraltar	2	642	24	.....	5	1,557	71	.....	7	2,199	95	.....
Malta	3	916	31	.....	2	418	27	.....	5	1,334	61	.....
Hanover	.....	.....	.....	.....	2	447	18	.....	2	447	18	.....
British East Indies	81	42,910	1,386	25	[illegible]8	2,964	138	.....	89	45,874	1,524	25
Cape of Good Hope	6	[illegible],863	69	.....	4	773	35	.....	10	2,636	104	.....
Mauritius	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
British Honduras	28	4,775	2[illegible]8	1	13	2,576	124	.....	41	7,351	352	1
British Guiana	15	3,3[illegible]4	138	1	8	1,304	64	.....	23	4,608	202	1
British West Indies	385	70,085	3,003	13	296	40,125	2,338	3	681	110,210	5,341	16
Canada	2,442	774,878	32,144	1,060	3,7[illegible]9	[illegible]91,569	40,960	1,158	6,201	1,366,447	73,104	2,218
British American Colonies	299	63,887	2,316	25	3,769	337,050	18,709	171	4,068	400,937	21,025	196
Australia	15	4,367	.....	.....	27	6,791	.....	.....	42	11,158	.....	.....
Falkland Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
France on the Atlantic	253	184,041	[illegible],403	2	106	35,370	900	4	359	219,411	6,303	6
France on the Mediterranean	22	9,201	321	1	30	11,398	366	2	52	20,599	687	3
French West Indies	61	8,026	383	1	12	3,043	137	.....	72	11,079	520	1
Miquelon and French Fisheries	1	165	8	.....	.....	.....	.....	.....	1	165	8	.....

French Guiana	11	1,526	78						11	1,526	78	
Spain on the Atlantic	25	12,445	383	4	21	7,661	279		46	20,106	668	4
Spain on the Mediterranean	57	12,113	477	3	53	13,506	580	1	110	25,619	1,057	4
Teneriffe and other Canaries	4	837	33	1	3	548	22		7	1,385	55	1
Manilla and other Philippine Islands	26	12,513	388	13	2	687	20		28	13,200	408	13
Cuba	1,719	441,418	17,424	63	211	48,537	2,311	5	1,930	489,955	19,735	68
Other Spanish West Indies	355	58,885	2,939	5	78	12,061	618	4	433	70,946	3,258	9
Portugal	7	1,948	54		22	4,715	139		29	6,623	203	
Madeira	6	1,021	48		1	166	8		7	1,187	56	
Fayal and other Azores	13	2,816	121	2	6	1,079	52		19	3,89	176	2
Cape de Verd	4	588	30		1	237	10		5	82	40	
Sicily	82	22,990	822	6	55	12,780	581		137	35,77	1,403	6
Sardinia	1	821	19		21	6,136	238	3	22	6,957	257	2
Tuscany	24	11,098	362		14	4,159	162		38	15,257	524	
Ionian Islands	2	416	18		1	208	10		3	624	28	
Trieste and other Austrian ports	4	1,502	48		4	1,658	69		8	3,160	117	
Turkey	25	6,857	276	3	1	654	25		26	7,511	301	3
Greece					2	502	22		2	502	22	
Hayti	282	36,871	1,637	7	48	6,821	320		330	43,692	1,957	7
Mexico	159	27,046	1,086	3	89	12,750	422	1	248	39,796	1,508	4
Central America	103	51,139	1,270	1	6	1,357	17		109	52,496	1,287	1
New Grenada	246	191,401	4,982	1	15	4,633	76		261	196,034	5,058	1
Venezuela	90	16,361	765	8	18	3,311	148		108	19,672	913	8
Bolivia												
Brazil	301	83,428	3,250	12	90	23,156	972	4	391	106,584	4,222	16
Cisplatine Republic	4	770	34	1	7	1,718	55		11	2,508	89	1
Argentine Republic	46	13,453	509	4	17	4,872	181		63	18,325	690	4
Chili	69	23,165	539	3	71	25,386	53		140	48,55	592	3
Peru	71	29,014	945	1	48	18,075	645		119	47,089	1,590	1
China	87	52,076	1,341	1	56	26,009	98		143	78,085	1,139	1
Patagonia	2	514	35		8	1,958	85		10	2,472	120	
South America generally												
Africa generally	56	11,381	553	15	3	1,318	38	1	59	1,699	591	16
South Sea Islands	29	5,237	156		8	1,219			37	6,456	156	
Equador	2	585	23						2	585	23	
Greenland	2	677	18						2	677	18	
Pacific Ocean	61	20,178	1,572	10	1	101			62	20,279	1,572	19
Atlantic Ocean	21	3,807	455						21	3,807	455	
Indian Ocean	5	1,194	129						5	1,194	129	
Sandwich Islands	70	12,814	215		36	5,047	21		106	17,861	236	
Northwest Coast					1	45			1	45		
Uncertain places					1	1,009	29		1	1,009	29	
Total	8,964	3,235,522	114,477	1,369	10,607	2,057,358	99,349	1,472	19,571	5,292,880	213,826	2,841

TREASURY DEPARTMENT, Register's Office, February 26, 1853.

N. SARGENT, Register.

RECAPITU

National Character of the Vessels.	Entered.		
	Number.	Tons.	Crews.
			Men.
Russian	22	7,544	290
Prussian	49	17,319	603
Swedish	138	42,401	1,510
Danish	48	10,069	379
Hanseatic	327	132,714	4,523
Dutch	59	18,868	469
Belgian	32	12,467	466
Mecklenburg	6	1,791	69
Oldenburg	19	4,878	207
Hanoverian	20	4,417	176
British	9,381	1,680,712	86,395
French	89	25,992	528
Spanish	144	38,151	1,876
Portuguese	20	4,095	167
Austrian	21	7,644	275
Sardinian	50	14,058	521
Sicilian	36	8,687	401
Mexican	61	6,676	215
Venezuelan	4	922	37
Brazilian	7	2,185	82
Argentine	2	470	19
Cisplatine	2	539	24
Chilian	21	6,095	.....
Hawaiian	29	3,574	.....
Peruvian	10	2,723	14
Tahitian	1	101	.....
Central American	2	730	30
Lubec	3	865	34
Tuscan	3	480	31
Grecian	.....	.....	.....
Chinese	.....	.....	.....
Pontifical	1	191	8
Total	10,607	2,057,358	99,349

Treasury Department, Register's Office, February 26, 1853.

LATION.

	CLEARED.			
	Number.	Tons.	Crews.	
Boys.			Men.	Boys.
1	20	6,997	240	.....
.....	44	14,577	486	.....
1	134	41,994	1,401	2
.....	44	9,618	378	.....
5	308	127,829	4,309	.....
4	70	20,841	488	5
.....	33	11,723	410	.....
.....	4	1,387	51	.....
.....	12	3,319	130	.....
.....	14	3,124	123	.....
1,452	9,231	1,675,400	83,908	1,485
.....	90	27,695	488	.....
6	152	40,710	1,955	16
.....	19	3,915	159	.....
.....	21	7,698	264	.. ..
3	50	13,505	478	.....
.....	36	8,687	396	1
.....	66	7,037	251	.....
.....	4	1,056	53	.....
.....	9	2,538	86	1
.....	4	966	47	.....
.....	2	397	15	.....
.....	25	7,332	.....	.....
.....	23	2,903	.....	.....
.....	14	3,852	14	.....
.....	1	146	.....	.....
.....	2	730	23	.....
.....	1	293	11	.....
.....	2	318	19	.....
.....	1	416	17	.....
.....	1	381	.....	.....
.....	1	191	12	.....
1,472	10,438	2,047,575	96,212	1,510

N. SARGENT, Register.

LITERARY DEPARTMENT.

Sleeper, Awake!

From the German of Rosegarten.

Sleeper, awake!
See, how the glowing morning
Opens the eastern avenue,
Strewing roses and flowers
Along before the brilliant daughter of heaven.
Sleeper, awake!
Sleeper, awake!
See, the daughter of heaven
Opens her golden eye-lashes.
Friendly she nods,
Lovingly looks
On the tear-glittering flower.
Sleeper, awake!
See, how the flowers blossom!
See, how the garden sparkles!
Hear, how the forest whispers:
Every waving grass-blade
Is a lace of pearls!
Every nodding bush-top
A cluster of gems!
Sleeper, awake!
Sleeper, awake!
Will not the flowing morning song awake thee,
Awaking nature?
Not the lowing of cattle?
Not the neighing of horses?
Not the barking of watch-dogs?
Not the horn of the hunter?
Will not the mighty motive awake thee,
Awaking mankind!
Not the thirst for action?
Not the whisper of love?
Not the trumpet of fame?
Sleeper, wilt thou always slumber?
Sleeper, awake!

THE PLAINS,

By FRANCOIS DES MONTAIGNES, of St. Louis.

CHAPTER NINTH.

Giving the results of sundry experiments of the natural philosophers, as well as a short account of a long and forced march, not mentioned in the programme, nor in any report heretofore published.

"O the naturalist's dreams, how rich they are,
Full of serpents and bats, and spiders so rare,
Bugs, fishes and worms, animalculae queer,
In myriads of genera and species appear:
The gnat and the mastodon curiously mingle,
Whilst swarms of reptilia make his head tingle."

THE SONG OF THE CENTIPEDE.

We were overtaken at this place, (which I shall here denominate, for the sake of easy reference, "*Camp Largesse*,") by the trading waggons of Mr. Doan, of St. Louis; whilst our old friends, the teamsters, who had freighted our surplus provisions thus far, now bade us a cordial good-bye, and jogged back with their lightened teams towards the border: leaving us to speculate and marve much at the surprising manner in which the said surplus had so suddenly disappeared. We had set out on this expedition under the happiest auspices, (as far as provisions were concerned,) and now, with but an iota of the journey performed, our larder, like Cassius, began to look "lean and hungry," whilst we saw our own portly selves in the dim and uncertain future, fast approaching the same unenviable condition. With sugar and coffee we happened to be well supplied; middling was beginning to look up,—whilst flour and crackers seemed on the decline; molasses being already obsolete. Maccaroni and rice, with a few other luxuries, such as tea, pickles, brandy, and biscuits, were, like the butter at *Camp Monopoly*, in the hands of a *few;* cups and saucers never rattled but in one direction, whilst eight or ten rations of thin bacon, with an occasional steak from the beeves driven along in the Caballada, composed the entire bill of fare: entrées, fricassées, ragouts, dessert, and all. The water along the route, so far, had been good enough, excepting where we were compelled to make use of that which had been collected in little holes or ponds in the prairie, where, being exposed to the heat of the sun, during the day, it did not require a great deal of *Bois-de-vache* to boil it. This, that is the water, was generally full of weeds, which gave the coffee made from it a peculiar flavor, which cannot be sufficiently appreciated until enjoyed under similar circumstances. As for buffalo meat, for which the reader has, no doubt, been anxiously waiting, we had not as yet tasted a particle; many of us did not even know what it was; had not seen a buffalo, nor a buffalo calf; not even an *elephant;* nothing as yet but rattlesnakes-in-towns, owls-in-towns, horned frogs by hundreds, and a few scattering antelope. No wild horses or Comanches: nothing but our own patient mules, the Kickapoo party on Cow creek, and a few vagrant Kaw Indians on a thieving and begging expedition. We *did* pass

quite a herd of buffalo skeletons, somewhere about the Little Arkansas or Cow creek, where some or other band of red-skins had had been amusing themselves in a wholesale and wanton slaughter of these rare animals, but as yet, the eye of the packsaddle expedition had failed to discover a single living buffaloe in this magnificent range where he must once have roamed in millions.

It was a sad disappointment, and one not easy to be borne; the veteran voyageurs had been smacking their lips for a week or so, on imaginary ribs and humps, and seemed from their gradually lenghtened countenances to grow unusually serious at this prolonged appearance of their favorite animal. To the green-horns, however, the idea of being *real, live, buffalo-eating Comanches* whizzing like streaks of lightning over the level plains, in pursuit of bands of buffaloe and grizzly bears, became daily more and more insupportable from the long delay; until their recklessness and love of savage life seemed gradually to have oozed out, and dwindled down, like the middling, into a very thin and shadowy remnant.

The fine race-horses, intended to the expedition, but attached either for the chase or the California *carreras*, seemed, on the contrary, to pick up renewed spirit; and, as if detecting the near approach of buffalo, began to snort and prance around with all the fire and impatience of regular trained coursers awaiting the signal for a start. One of these splendid buffalo chasers came very near breaking Francois' leg, and had the poor fellow not been mounted at the time, the blow would have seriously injured him, and put an end, perhaps, to all his explorations, and these invaluable memoranda in the bargain. In this manner we jogged along, over the continually ascending plain, which constitutes the dividing ridge between the waters of the Osage and those of the Arkansas, crossing many little creeks and tributaries of the latter, some being completely dry, and others again full of running water, now camping at a pond full of weeds, and then scooping up the sandy water in a shallow creek, until, after having passed in succession all the Turkey creeks, (little and big,) the little Arkansas, Owl creek, (famous for owls, by the way,) several Cow creeks, (upon one of which Chavez was killed, in 1843,) and a host of other little ravines and creeks, *with* water and *without* water, too tedious to mention, but all famous for something, we finally came in sight of that famous landmark for the trader and traveller,

PAWNEE ROCK.

This is a spot well calculated by nature to form, as it has done, an important rendezvous and ambuscade for the prowling savages of the region, and has often afforded the Pawnees and other roving rascals, a pleasant little retreat or eyrie, from which to watch the passing traders, and pounce down upon them unawares, like vultures, and bear off their plunder and scalps. It is situated too, in a sort of debateable land,—being within the range not only of

the Pawnees, but of every Indian tribe, the Osages included, whose pursuits lead them within a radius of a hundred miles. It has, from its position, been a favorite battle ground for hostile bands and tribes, and has several times proved an unfortunate spot for the white man.

Seven Americans were once surprised by a large band of Indians in the vicinity of this noted Rock, and were compelled to retreat to it, for safety. Here, without water, and with but a small quantity of food, they were besieged by their bloodthirsty foes for two days, when a party of traders coming along the trail relieved them from their perilous situation, and the presence of their hostile friends.

There are several graves on the summit, containing, probably, the bones of defunct braves, may be some of the very fellows engaged in that identical besieging party. It has been an unfortunate place for many, according to the most reliable accounts, and lost none of its reputation, in this respect, during the expedition of which we profess to be an humble chronicler.

Immediately before reaching Pawnee Fork, on the East, about a quarter of a mile distant, and lying to the South of the road, there is an extensive and populous town or pueblo of prairie dogs. Happy, jovial little souls, who frisk about like squirrels, subsisting on the roots of grass instead of hickory nuts, which happen to be very scarce just at this spot, rarely drinking much water or anything else, and who reside in little subterranean cavities dug out with much labor and skill, and defended from the overflowing rain by little tumuli or breastworks built around the entrance. This is situated immediately in the centre of the little mound, and descends perpendicularly for several feet, and then branches out like the shafts of a mine, into numerous ramifications and apartments which very few have had the patience or leisure fully to explore.

The top of the mound serves them also as a piazza or porch on which to sit during pleasant mornings and evenings, either to gaze over the surrounding city, or chat with their opposite neighbors; the streets, like those of ancient St. Louis, being laid out on the primeval principle to serve this very purpose; and the entrance into their Esquimaux dwellings being always near at hand, enables them, when wounded or frightened, to disappear with marvellous celerity.

However, as we are not pretending to be fully conversant with the entire economy of this singular denizen of our western plains, having failed, as the reader will discover hereafter, in sundry experiments attempted for this purpose, we will only mention, in addition, what has been repeatedly told us by experienced mountain and prairie men, whose pursuits have enabled them to see a great deal more of the habits of these gregarious and sociable little animals, than the present exploring corps, that, instead of occupying the same burrows or houses with the burrowing owl, (another pe-

culiar fellow, by the way,) or with the rattlesnake, as they are frequently said to do; they are, on the contrary, the most exclusive fellows to be met with. The rattlesnake is a mortal enemy to the dog, and dines most sumptuously on the young and tender pups; sometimes taking possession of and depopulating with his voracity whole wards and municipalities. The dogs are thus compelled to abandon their snug little homes to the serpents, three or four of which may frequently be seen in possession of a single burrow,—and when they finally become tired of the location, and move off to commit further outrage on the defenceless,—the place naturally falls to decay, and becomes the legitimate abode for the spider and the owl. The former erecting his loom within, whilst the latter, an odd and excentric fellow, struts about on the outside, and attempts to mimic with his cracked voice the lively bark of unfortunate and exiled Tray.

The snakes were very abundant in certain places, and as we rode along, we now and then killed them with our gun rods, as they halted beneath us and rattled defiance. One of the company, a firm believer in charms, and famous for collecting curiosities, gathered a sufficient crop of rattles within a distance of forty or fifty miles to decorate his hat band with nearly as many different trophies.

Just as the sun was sinking, this celebrated Rock hove in sight; the great village, I have mentioned, presenting itself in bold relief, on the left, to the astonished gaze of the packsaddle expedition. No lofty tower or sparkling steeple glittered in the evening sun, no giant dome nor marble monument cast their shadows over the place, nor did the deep hum of a great city of many souls strike the ear. But the flat prairie, for many acres roundabout, was thickly sprinkled with little conical hills or houses, perforated with little holes on top for doors, and on each house-top was one or more of the little citizens, perched upright, and keeping up a sharp and continuous cry; more resembling a dry consumptive, little cough than a genuine bark.

We had as yet neither seen nor killed a single buffalo; antelope were scarce, *no* deer, and our fresh meat was becoming dry and hard; game of all sorts was unusually scarce; and never did Balboa gaze upon the ocean with more powerful emotion than did the packsaddle expedition upon the dog town.

Never did the capital of the Montezumas burst upon the eye of Cortez and the Spaniards in more overpowering splendour, than did the dog town, at Pawnee Fork, upon the astonished vision of the enchanted packsaddle expedition.

The very dogs seemed inviting us to their city. *Cheh, chay, cha!—Chah, cheh, chay!* from every house-top. *Chay, chay cha!* from the burgher near by, to the far off and scarcely audible *cha!* at the farthermost limit of the corporation. Every person in town seemed to be out at the celebration, and join with his voice

in the general shout. Now and then a fellow would run down the side of his house, whisk across the street, exchange a few words with his neighbor, whisk back again, disappear for a moment in his cave, and then boldly perch himself on the roof again, to look and bark at the strange visitors to his city.

This was too exciting a scene to stand, and the first intimation the dogs had of any *ukase* concerning their heads, or of any hostile intent, on the part of the explorers, was a furious cannonade upon their devoted town, sweeping their pretty little streets and avenues, and spreading death and destruction on every side.

The ardour of the packsaddle expedition got the better of its judgement, and several of the *vieux voyageurs* themselves, men who had trapped many a precious beaver, and slaughtered many a lordly buffalo, now joined in the ruthless and wanton attack.

The village soon became the scene of a wholesale massacre: taken by storm, the inhabitants were cooped up in their dwellings and *shot at*,* without mercy, on showing either the tip end of a tail or a nose; neither youth, sex nor age was spared in this violent *coup d'etat*† of the packsaddle expedition. The carnage was tremendous, and the reports of the death-dealing rifles sounded over the doomed town like the boom of cannon over *captured, blood-stained Sonoma*.‡ Blood ran like water, and so did the dogs, for, at the click of a trigger, the individual aimed at, disappeared beneath the earth, like a diedapper duck, and left his fate, and whereabouts mysteries to be solved. Francois himself, who of course had participated in the expedition, was confident of having killed two dogs at a single shot, but upon carefully examining the ground, and finding no blood nor dogs, became convinced that he had been deceived either by a mirage or *lusus naturae;* he could not tell which. One thing was plain, the dogs were not there. In a short time, not a single prairie dog was to be seen or heard; all was still throughout the great town, which but a few moments before had echoed with the life and bustle of its thousand inhabitants; and the barbarous invaders now began to move off from the scene of blood, and follow in the wake of the fast receding waggons, bearing away with them three murdered pups, and leaving many more behind, badly frightened, if not seriously wounded.

At the continued report of the guns, the captain imagining perhaps that the Pawnees were at him again, had ridden back with several of his aids, and, after making a *reconnaisance*, patiently halted until Francois and the balance of the forlorn hope, with the three pups, made their appearance.

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* Vide History of Mexico.

† Vide Life of Louis Napoleon.

‡ Vide Conquest of California, by Fremont.

He then very politely informed them that, in consideration of their great services on this occasion, he would not require them to ride on the morrow; that they might dispense with their mules, which seemed somewhat to interfere with free action on such occasions, and that they would be allowed the privilege of performing the next twenty-five or thirty miles on foot, when they would be enabled to practice on the dogs at pleasure, and perform any other small experiments of the sort, suggested during the promenade.

* * * * * *

The dogs were avenged.

We encamped on Walnut Creek, (famous for walnuts, may be,) but a mere ravine in the gently undulating plain, there being no timber of any account in sight, whilst far away, towards the West and Southwest, stretched the beautiful park, with its antelope, its badgers, its owls, its horned frogs, its cactus and its prairie dogs;* a boundless field of wonders calculated to call into action all the science and nerve of the pedestrian octave during the morrow's display.

The heavens, too, as if deprecating the great outrage committed, came down upon the devoted heads of the packsaddle expedition, during the night, and a violent storm of wind and rain overturning tents, and deluging everything, lasted for several hours. The night was as black as India ink, and the fires being all extinguished, nothing could be discerned but by the quick flash of the lightning.

None felt like exposing themselves to the heavy rain, and excepting the beating of the large drops, and the flapping of the tent-cloths in the gale, all was as silent as the camp of Sennacherib. Now and then the lightning discovered a face peering cautiously from beneath the edge of a prostrate tent, apparently examining the clouds for a clearing off, when a violent gust would put an end to his studies, and make him hold on to the protecting canvass with all the tenacity of one in danger of being blown away to some unknown point of the compass.

Morning came at last, and the sun with his ruddy face formed a most encouraging contrast to the dark and damp night. The half-drowned camp spread out their clothes and blankets to dry; the jovial teamsters whistled lively airs, as they threw the harness on their teams, whilst the unfortunate eight, the experimental philosophers of the previous evening, turned loose their riding animals for a day's recreation, moodily shouldered their guns, and prepared to do penance for their unlucky attempts at unravelling the mysteries of the social and domestic economy of the pups at Pawnee Rock.

---

* For a full length picture of the prairie-dog, see Charles Lucien Bonaparte's "Continuation of Wilson's American Birds."

In justice to the impartiality of the discerning chief, we may as well mention, that Basil Lajeunesse, a favorite companion in former trips, had been included in the proscription, and, from the way he stalked across the warm prairie during a fast trip of twenty-five or thirty miles, from Walnut Creek to Wolf Creek, beyond Pawnee Fork, shewed himself fully entitled to the soubriquet of *mountain goat*, given him by Captain Fremont in a previous report; whilst the balance, amongst whom was Francois, *of course*, from the manner in which they straggled and browsed along over the buffaloe grass, utterly indifferent to either prairie dogs or rattlesnakes, were just as fully entitled to that of *mountain sheep*.

Towards one o'clock, the foremost reached the eminence whence the Fork may be seen meandering through the flat country towards the left, and after taking in the carcase of a slaughtered antelope shot by one of the pedestrian naturalists, the foremost waggon descended to the crossing.* The sides were very abrupt, and owing to the heavy rain of the night, were yet wet and slippery, the teams requiring the assistance of the men at the wheels to ascend the opposite bank.

The water was only about two feet deep at this crossing, but was very swift.

Concluding from their own wearied condition, that it was high time to camp, the infantry made a short halt at this place, and the wagons ahead doing the same thing, one of the philosophers, who had been trudging along manfully in a pair of light fantastic pumps, came to the conclusion to dispense with their services, and threw them into the creek. To our surprise, and to his consternation, the caravan started again, and continued in motion until it reached a point about five miles further, on a small tributary of the Fork, running in on the South-west, sometimes called Wolf Creek, probably on account of its being famous for wolves, as Francois *himself* saw one of these ferocious animals, about a mile distant, whilst searching for plums in his route up the creek, and evinced his indomitable *discretion*, by taking a stampede in the direction of camp, whilst the wolf shewed *his*, by taking to his heels in a contrary direction. With the exception of Jeams, who had thrown away his pumps, the eight peripatetic philosophers arrived in camp, in good order and condition, after having, during this arduous campaign, acquitted themselves not only to their own satisfaction, but to that of the entire packsaddle expedition.

* From the great height of the country, in the proximity of these Crossings, a view of the surrounding region for many miles is commanded, and the spot, on this account, has been a favorite point of attack for hostile Indians, in their depredations on passing trains. As early as in 1831, young Minter, a clerk in the employ of Messrs. Smith and Sublette, was killed in sight of his companions, whilst encamped in this very locality.

Columbus.

From the German of Schiller.

BY H. OF ST. CHARLES.

Steer, adventurous sailor! Although the witlings deride thee,
And the weary hand of the pilot drops from the helm,
Always on toward the West! The shore will there be found lying;
There it is surely as 'tis glit'ring before thy mind's eye.
Trust thy guardian Genius, and pursue the still voice of the sea:
Were the New World not born, 'twould now mount out of the waves.
Nature, by an immortal contract, stands up to genius.
What is promised by one, the other will surely fulfill.

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Office and Manufactory, east side Second street, between Almond and Poplar, St. Louis, Mo. Office hours from 10 to 11 o'clock, A. M., and 4 to 5 P. M.

Horse Shoeing.

JOHN MULLERY, Premium Horse Shoer in the alley, opposite the Post Office, will as usual pay particular attention to the various diseases affecting the feet of horses, and will guarantee to give general satisfaction in either of the above departments.

CHOCOLATE, COCOA & BROMA.

W. BAKER & Co's American and Vanilla Chocalate, Cocoa and Broma, to which first premiums have been awarded by the chief Institutes and Fairs of the Union, are for sale by all the principal Grocers in the United States, and by their agents,—

HUSSEY & MURREY, New York; GRANT & TWELLS, Philadelphia; THO'S V. BRUNDIGE, Baltimore; KENNET & DUDLEY, Cincinnati, Ohio. WALTER BAKER & CO.
Dorchester, Mass.

Liquors and Wines.

CHARLES DERBY, Wholesale Dealer in Foreign Liquors and Wines, Domestic Liquors, and that well known "Star" Brand of Rectified Whisky, No 71 Levee, (entrance from Levee and Commercial Street,) St. Louis.

Safes.

M'MURRAY & DORMAN, Iron Railing Manufactory, n. s. of Chesn. bet. 9. & 10. streets, continue to manufacture at the above establishment, all kinds of plain and ornamental iron railing, balconies, bank and jail doors, book safes, fire-vaults, iron window shutters, iron awnings, lightning rods, bedsteads, gratings, and in fact, any thing which can be formed of iron.

Trunks.

M. PENDZINSKI, Premium Trunk Maker. Constantly on hand, at wholesale and retail, and made to order at the shortest notice, Hard Leather Trunks, Solid Leather Steel Spring Trunks, Valises, Carpet Bags, Packing Trunks, Ladies' Dress Boxes, &c.

Trunks repaired in the best manner. Call and examine for yourselves before buying elsewhere, as I am determined to sell as low as any house in the trade, at all risks, No. 42 North Second street [Westside,] between Chestnut and Pine streets, May, 1851.

Foundry.

ROLIN CLARK, PHILANDER BRALEY.
JOHN RENFREW. ALEXANDER CROSIER.

EAGLE FOUNDRY AND ENGINE SHOP, North-west corner of Main and Biddle streets. Manufacturers of all kinds of machinery, boilers and sheet iron work, portable circular saw mills always on hand, all orders executed with fidelity and despatch.

Records.

PERSONS wishing to obtain transcripts of records in New Madrid county, can procure them without delay by addressing the undersigned. And to avoid the inconvenience of remitting small sums, the records will be directed to George Pegrim & Co., St. Louis, who will deliver the same upon the payment of the fees. WM. MOSELEY,
Recorder of New Madrid Co., Mo.
March, 1851.

Jewelry, Watchmakery & ENGRAVING.

P. STUBENRAUCH & SONS.

No. 11 N. 3d str. between Chesnut & Market, and No. 17, Chesnut street opposite the New Post Office.

Would call the attention of the public and the trade generally to their extensive stock of Jewelry, Watches and Clocks. They also are well enabled by long practice and experience to perform all kinds of engraving, in stone as well as metal, in the best style, such as seals for Notary Publics, for Insurance Companies, for Railroad Cos., and all other Companies.

☞ All orders promptly executed and on the most liberal terms.

Saddlery.

T. GRIMSLEY & CO., Dealers in all kinds of Saddles, Bridles, Harness, Trunks, Carpet Bags, &c., No. 68 Main street, four doors below Olive st., St. Louis, Mo.

Commission Merchants.

ANGELRODT & BARTH, Commission and Forwarding Merchants, No. 126 North Second Street, between VineStreet and Washington Avenue, St. Louis, Mo.

RUSSELL & BENNETT. Wholesale Grocers and Commission Merchants, North-West corner of Olive and Second streets, opposite the Monroe House, St. Louis, Mo.

CHOUTEAU, HARRISON & VALLE, Commission Merchants and Proprietors of the St. Louis Rolling Mill. Manufacturers, from the ore of the Iron Mountain, of Bar Iron in all its various shapes, Sheet Iron and Boiler Plate, Nails, Spikes, &c., &c.
Warehouse No. 129 North 2d street, St. Louis

Merchant Tailor.

J. H. BLOOD. Merchant Tailor, No. 21 Third Street, One door from the corner of Chestnut Street, St. Louis, Mo.

Dry Goods.

CROW, McCREERY & CO., Wholesale dealers in Dry Goods, No. 71 Main street, St. Louis, Mo. Wayman Crow, Phoceon R. McCreery, Wm. H. Barksdale, Wm. A. Hargudine, Charles D. Appleton.

WOODS, CHRISTY & CO., wholesale dealers in Dry Goods, No. 75 Main street, St. Louis, Mo. James Woods, William T. Christy, James C. Christy, Robert K. Woods.

Boots & Shoes.

SCHRŒTER & EBY, Manufacturers of Boots and Shoes. No. 44 Main Street, Fourth door South of Pine,) St. Louis, Mo.

THE

WESTERN JOURNAL

AND

Civilian

M. TARVER & H. COBB Editors and Proprietors.

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Lithographic Establishment.

SCHARPF & BRO., No. 71 Market street, St. Louis, Mo., are prepared to execute anything in the line of lithography; and especially, as they are in possession of the largest sized Lithographic presses and stones, they are able to do orders of the largest dimensions. They take and lithograph portraits and likenesses from daguerreotypes, engrave or lithograph show bill cards, business and visiting cards, diplomas, music, manifests, scrolls, facsimiles, bank notes, bank title, bank checks, bill heads, drafts, bills of lading, maps, town plats, &c.

☞ They particularly beg leave to request the special notice of the public to their crayon drawings and colored lithographs, as much as this is the only establishment in the West, where this improved style of lithographing is practised.

E. & C. ROBYN'S Lithographic, Drawing, Engraving, and Color Printing Establishment, No. 44 North Second Street, below Pine, St. Louis, Mo.

Portraits, Landscapes, Animals taken from life; Music, Vignettes for Books, Drafts, &c. Showbills, Labels, Business & Visiting Cards, Architecture, Machinery, Drawings, Plans, Maps, &c. Drawings of all kinds executed on Stone.—Copper and Steel plates, wood cuts, Manuscripts &c. transferred. All kind of color and ornamental printing executed in the neatest style, on moderate Terms.

Paper Hangings.

THOMAS DALE,

Paper hanger, Whitener and Wall colorer. No. 185 Main street: near Alex. Leitch & Co's. Drug store, St. Louis, Mo.

☞ Job Plastering done at short notice and best style.

All orders for work promptly executed.

Manufacturers.

THOMAS GREY, Blacksmith and Iron Worker, No. 31 North Second street, between Olive and Locust, St. Louis, Mo., keeps constantly on hand and manufactures to order Ox Chains, Sledges, Wedges, and every description of Mining Tools, also Iron Tubbies and Picket Pins. ☞ Blacksmith work for Housebuilders, at the lowest prices. ☞ He has always on hand the highly recommended Iron Frame Bedstead, and Camp Stool.

Mathematical Instruments.

J. BLATTNER, Mathematical and Surgical Instrument maker, Dealer in Guns, Pistols and Sporting Materials, No. 68 North Second street, between Pine and Olive, St. Louis, Mo., manufactures, and has always on hand: surveyor's Compasses, Levelling Instruments; Theodolite Pocket Compasses, Surveyors, Barometers, Thermometers, Drawing Instruments, Spectacles, Ivory and Gunter's Scales and Protractors, Hour and Half Hour Glasses, Microscopes and Magnifying Glasses, Hydrometers of silver and glass, Aerometers for acids and salts, Magic Lanterns, Electrical Machines, &c., also, Surgical and Dental Instruments; Pocket, Dissecting, Tapping and self-injecting cases; Taylor's Shears, all sizes; Syringes, large and small, Scarificators, Lancets; Forceps; Turnkeys; large Scales and Weights for Druggists; Prescription Scales on Stands; Revolvers, Guns, Pistols, Powder Flasks, Game Bags, &c. ☞ All the above Instruments repaired at short notice in the best manner.

Fruit Trees.

FRUIT TREES AND SHRUBBERY, for sale by the undersigned, at their fruit farm and nursery. This establishment is located seven miles South of St. Louis, Mo. There are Omnibus Coaches running daily from the City within one half mile of the establishment. The Nursery and Gardens are open at all times (Sundays excepted) for the reception of visitors. Horticulturists and amateurs are respectfully invited to visit the establishment and examine for themselves. In directing the attention of the public to their nursery, they would remark that one of the firm, (Mr. James Sigerson,) has been engaged in the above business for the last twenty-five years; during that time he has tested many of the varieties now growing. This, with the assurance on their part of an intention to increase the number of their trees, as well as to add to their assortment from year to year, furnishes a strong guarantee to persons wishing to make choice selections of fruit, that they can always be supplied. Their prices for trees will be as reasonable as at any similar establishment East or West, and when desired, trees will be delivered free of charge in the city or on steamboats; packed in good order for their destination.

☞ All letters addressed to John Sigerson, St. Louis, or to James Sigerson, Carondelet, will meet with prompt attention.

JOHN SIGERSON & BROTHERS.

Hardware.

P. WONDERLY, Manufacturer of Copper, Tin and Sheet Iron Work—such as Copper Pipes for Steamboats and Distilleries, Soda Fountains, Copper cities, Well and Cistern Pumps, and every other article in his line of business. No. 233 Main street, South-east corner of Cherry, St. Louis, Mo. He also manufactures and keeps constantly on hand, Premium Steamboat Cooking Stoves. Tinware always on hand, wholesale and retail.

Furniture.

WM. M. HARLOW, proprietor of the St. Louis Furniture Store, manufactures and keeps constantly on hand every variety of household furniture, matresses, window blinds, willow ware, &c.

Also, manufactures to order every article in his line, with despatch. Orders from abroad promptly attended to, and goods carefully packed. All goods warranted as recommended.

New Warehouse, No. 69 Second street, between Olive and Locust streets, St. Louis, Mo.

Slate Yard.

JOHN M. CANNON, Slater, No. 16 and 17 South Sixth street, St. Louis, would respectfully inform the public that, having now completed his arrangements, he is prepared to make contracts for new work in his line. He has in his employ practical slaters, and is well prepared to execute in a workmanlike manner, and with despatch, all orders entrusted to his care. He keeps constantly on hand, and for sale, Welsh slate, rich tiles, sheet lead, slate flagging, slate hearths, copper, brass and iron slating nails, Bowendale cement, and all other articles pertaining to his business. He will strip from roofs zinc, sheet iron, tin, or other covering, and substitute therefor slate. Slate removed from one roof, can be used to advantage on another, which is not the case with any other roofing material. His terms are such as cannot but prove satisfactory. Apply as above.

Paper Hangings.

WOLF & ENGERT, Importers and dealers in Paper Hangings, Colors and Fancy Papers, No. 49 South Second street, between Elm and Myrtle, St. Louis, Mo. Constantly on hand, all kinds of oil and water colors, paper-hangings, chimney screens, taster pieces, window shades, marble, marsequin, Gold and Silver paper, painters' and Dutch gold bronze, lead pencils, paint boxes, paint brushes, drawing paper, &c. April, 1850

Washington Steam Sash Factory.

B. PHILIBERT,

WASHINGTON Avenue and 14th street, south side St. Louis, Mo., makes Doors, Sash and Blinds Also Door and Window Frames. Terms moderate. N. B.—Slitting and Planing, done here.

Banking Houses.

PAGE & BACON, Banking House No. 159 Main street, St. Louis, next door to the Bank of Missouri.

N. B. Deposits received, Drafts and Notes from all parts of the Union collected and Exchange on the East and South for sale at all times.

Also Branches of Exchange and Banking Houses at San Francisco and Sacramento Cities, California.

L. A. BENOIST & CO., bankers and exchange dealers, No. 83 Main street, east side third door north of Olive street, St. Louis, Mo. Interest paid to depositors, drafts and notes collected, sight and time bills purchased, and sight exchange on the eastern cities and New Orleans for sale, at the lowest rates, in sums to suit purchasers.

JOHN J. ANDERSON & CO., bankers and exchange dealers on the north-west corner of Main and Olive streets, St. Louis, Mo. Interests paid to depositors, drafts and notes collected, sight and time bills purchased and exchange on the eastern cities and New Orleans for sale at the lowest rates.

LOKER, RENICK & CO., bankers and exchange dealers, No. 132 Main street, west side, third door north of Vine street, St. Louis, Mo. Interest paid to depositors, drafts and notes collected, sight and time bills purchased and sight exchange on the eastern cities and New Orleans for sale at the lowest rates in sums to suit purchasers.

LUCAS & SIMONDS, Bankers and Exchange Dealers, Corner of Main and Chestnut streets, St. Louis, Mo.

Drugs.

CHARLESS, BLOW & CO., Importers and Wholesale Dealers in Drugs, Paints, White Lead, Oils, Window Glass, Glassware, Perfumery, &c., Nos. 70 and 72 Main Street, St. Louis, Mo. ☞ N. B. Ginseng and Beeswax bought at highest market rates.

St. Louis Cotton Factory.

ADOLPHUS MEIER & Co., Manufacturers of St. Louis Cotton Yarn, &c., Importers and Dealers in HARDWARE and CUTLERY, No. 23, corner of Main & Chestnut Streets, St. Louis, Mo.

Hats & Caps.

H. & R. B. WHITTEMORE & CO., wholesale dealers in Hats, Caps, Bonnets and Straw Goods, No. 113 Main str., St. Louis, Mo.

☞ Cash paid for Furs and Deer Skins.

PACIFIC RAILROAD.

Open to Franklin.

THIS Road is now open for the transportation of Passengers to Franklin County, connecting, at Meramec, with T. R. Allen & Co.'s Stages to Manchester, and at Franklin with Frink & Co.'s Stages to Jefferson City, and Washington, Mo.

On and after the 31st of July, and until further notice, trains will run regularly every Day, as follows:

ST. LOUIS TO FRANKLIN.

Leave St. Louis at	9 30 A. M.	
do.	do.	2 30 P. M.
do.	do.	5 30 P. M.
Arrive at Franklin at	10 15 A. M.	
do.	do.	4 35 P. M.
do.	do.	7 25 P. M.

FRANKLIN TO ST. LOUIS.

Leave Franklin at	6 10 A. M.	
do.	do.	11 10 A. M.
do.	do.	5 05 P. M.
Arrive at St. Louis at	8 A. M.	
do.	do.	1 50 P. M.
do.	do.	6 50 P. M.

The above trains stop at all way Stations.

Omnibusses will run regularly from the Corner of Fourth and Chestnut streets, to connection with all the trains.

Passengers are particularly requested to purchase tickets of the Agents at each end of the line, before taking seats in the Cars. Extra charge for tickets purchased in the cars.

C. A. MAIL.—Frink & Co. will run a daily line of Four Horse Post Coaches as follows: Leaving Franklin in connection with the 9 A. M. train from St. Louis. They will run coaches to Jefferson City, and thence westward and south-westward. They will also run a line of four horse Post Coaches, via Union, to Washington. Time to Washington from St. Louis, 7 hours; to Jefferson City, 29 hours.

A Stage will run to and from Manchester, in connection with all the trains to and from St. Louis. Tickets to be procured at the Depot, on Fourteenth street, or from T. R. Allen & Co., or their agent.

JAMES M. WARD, Ass't Sup't.

Watches and Jewelry.

C. D. SULLIVAN & CO.,

JEWELLERS, Watch and Clock Makers, No. 39 Fourth Street, opposite the Planter's House. A large and well selected assortment of Clocks, Watches, Jewelry and Silver Spoons constantly on hand and for sale low. All kinds of jewelry made to order and neatly repaired. Engraving neatly executed. The highest price paid for old Gold and Silver. All orders punctually attended to.

March 1850.

Flowers.

FLORA GARDEN.—This establishment contains a collection of Plants and Flowers not excelled, perhaps, by any in the United States. Of ROSES alone there are 200 varieties! And the proprietor has devoted ten years to storing his HOT-HOUSES, &c. full of rare with specimens of rare and beautiful plants and flowers from almost every part of the globe. The garden is pleasantly situated on South Seventh street and affords a delightful retreat from the noise and dust of the city. A commodious SALOON has been fitted up and will be supplied with Confectionery, Ice Creams, and other refreshments suitable to the season and the place. Spirituous liquors are excluded from the premises. Bouquets of the richest flowers and most tasteful combination furnished throughout every season of the year.

March 1850. G. GOEBEL.